VOLUME II SEPTEMBER, 1909 NUMBER 9

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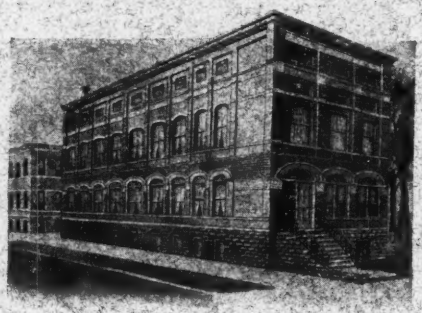

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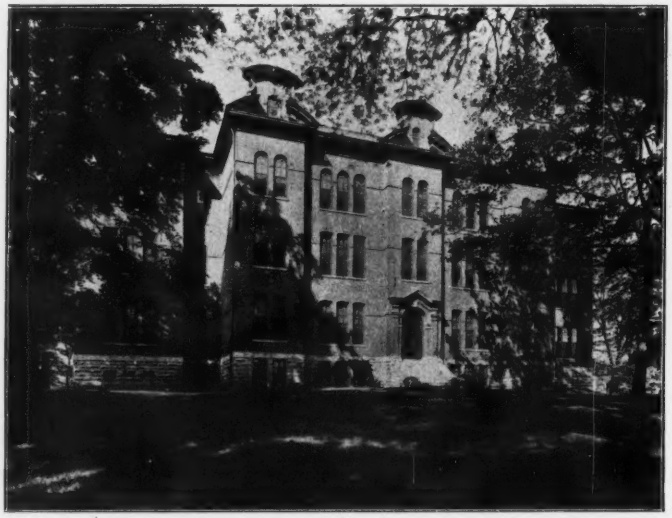

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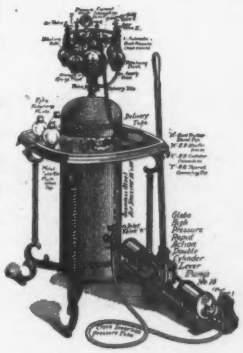

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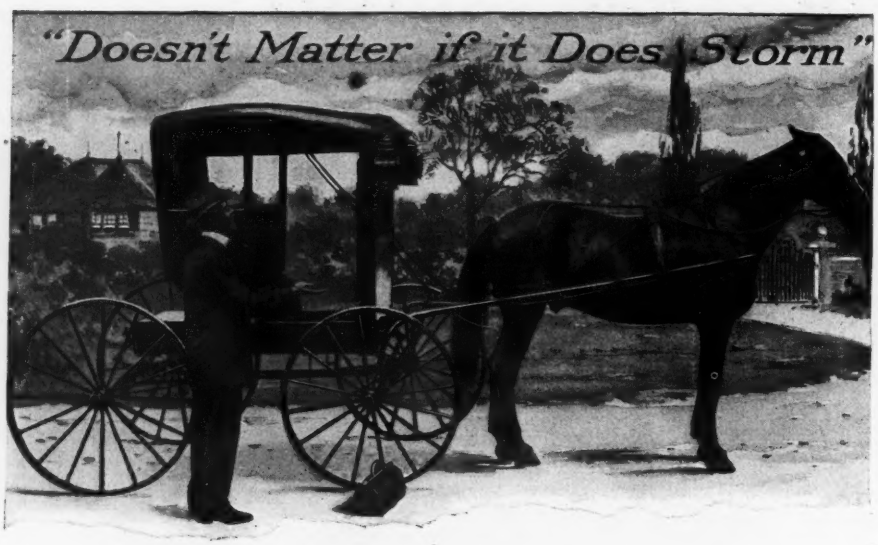


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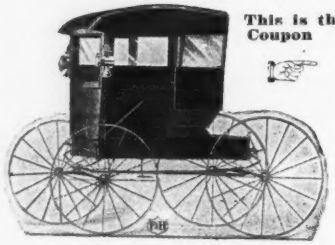

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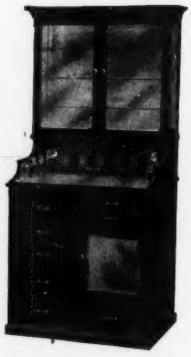

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# SOUTHERN MEDICAL JOURNAL

PUBLISHED MONTHLY

Volume II. NASHVILLE, TENN., SEPTEMBER, 1909 Number 9

## THE THERAPEUTIC ADMINISTRATION OF TUBERCULIN TO WAGE-EARNERS*

BY PAUL H. RINGER, A.B., M.D., Asheville, N. C.

Some eighteen months ago in a paper on the use of tuberculin in pulmonary tuberculosis,[1] I stated as one of my conclusions that "tuberculin should never be used save in conjunction with strict hygienic and dietetic measures." This I still firmly believe to be the ideal method of procedure, and the one offering us the best chance of ultimate cure. Facts must, however, be taken as found, and consideration of conditions as they are to-day together with three or four particular cases that have come to my notice have led me to discuss the subject indicated in my title.

Practically all will admit that next to rest, fresh air, good food, tuberculin is our staunchest aid against tuberculosis. When used in conjunction with hygiene, diet, and climate, the best possible results can be looked for. Unfortunately treatment with tuberculin, to be efficient, is a matter of months. If the patient be sensitive and it is desired to give the very valuable supplementary courses, treatment becomes almost a matter of years. There are few whose bank accounts are capable of withstanding so prolonged a strain.

Let us state a hypothetical case: A patient with a slight lesion has been under a strict hygienic-dietetic regime for six months. For the past three months he has been taking tuberculin, which is tolerated well, but which has to be given guardedly to avoid reactions. At the end of the six months the patient is not a cure, but an arrested case. His financial resources are at an end and he must return to work. He is able to work, but of course his chances of relapse are greatly enhanced because of long hours and relatively great confinement. He has not taken tuberculin long enough for it to have done him any permanent good. Once at work, his hygienic-dietetic regimen will of necessity become slack. Should not this patient be given tuberculin while at work wherever he may be? He most assuredly should. If he remains at the health resort his physician that began treatment can continue it—if he goes to some other town, a physician with a working knowledge of tuberculin should at once be sought out and requested to continue its administration.

In general it can be said that the administration of tuberculin to one that is at the same time at work must be carried on with the greatest care. Increase in dosage must be slow, intervals between doses must be longer than those usually employed, and every effort must be made to accustom the system to tuberculin without the slightest signs of disturbance—cutaneously, focally, and especially systemically.

A patient thus treated while at work is not taking tuberculin under ideal conditions, but is doing the best he can under the circumstances. I do not believe that any patient should *commence* treatment with tuberculin while at work. One of the most critical periods in treatment with tuberculin is that covered by the first 10 or 12 doses. These practically determine the tolerance of a given individual. During this time the physician himself is groping about trying to seize upon and weave together the various threads that will show him what manner of man is his patient

*Read before the Buncombe County Medical Society.

toward tuberculin. The beginning of treatment should without exception be instituted under conditions of complete rest.

As a result of the first twelve doses or so it may be seen that the patient is not a case suitable for tuberculin. Even minimal doses may cause distinct and prolonged reactions and so upset the physical economy as to render the patient incapable of work—this condition, of course, precluding the further exhibition of tuberculin. Again the patient may be very sensitive to the first six doses or so and then develop tolerance so that increase can be more readily made without fear of untoward occurrences. As a broad general rule I would suggest that, if tuberculin is still to be continued, a patient should have been taking it for two months before going to work.

When giving tuberculin we are looking for a two-fold action: One an active therapeutic action directed toward the existing disease; the other a prophylactic action that, by enhancing the resisting powers of the body in general, guards against the possibility of relapse. The adjuvant action of tuberculin in properly selected cases few will question: such a conservative authority as Trudeau considers that relapses are more rare under its use. Many other authors could be quoted who give glowing accounts of the duration of health in their patients after the use of tuberculin, but I believe that the most conservative opinion is the one that carries the most weight.

The wage-earner that is receiving tuberculin has certain advantages and certain disadvantages. In his favor is the fact that he has all the needful time at his disposal. He is not forced to think that in three or four months he must stop treatment. His treatment (not the best to be sure, but at any rate second-best) and his work go on together. His physician has him constantly under observation, far more so than were he merely "watching" him. In the latter case he would be a bold man that insisted upon seeing his patient oftener than twice a month; but owing to the administration of tuberculin the patient is seen once or twice a week. In the case of these patients to whom time is no object, supplemnetary courses of tuberculin can be given with ease. These are very important, and will be discussed later. The patient labors under the disadvantage that increase in dosage must of necessity be slow, sometimes more so than really necessary because of the absolute need of avoiding reactions of a systemic nature. Thus inert dosage is frequently kept up for a long time and valuable weeks lost.

The administration of tuberculin to a patient that is at the same time at work must be in the hands of one conversant with all the phenomena of tuberculin-therapy, more especially with those of apparently slight moment. He should be an expert physical diagnostician, capable of detecting very minute changes in existing pulmonary conditions.

I believe that even with small doses twice a week is a sufficiently short interval. The patient at work has far more chances for autoinoculation than the one living a more restricted and supervised life. Intervals between doses should quickly be made six or seven days. First and foremost in this mode of treatment is the necessity for avoiding all systemic reactions. A very excellent and practical working plan for these patients was suggested to me by my friend, Dr. W. L. Dunn, of Asheville, this being to establish an interval of a week as soon as possible and to give the dose of tuberculin on Saturday night—thus if slight reactionary phenomena appear the patient has all of Sunday in which to keep quiet and to recuperate.

In order to more completely avoid the systemic reaction, the other two types, the cutaneous and the focal, must be diligently sought for both by questioning and by physical examination at each visit of the patient. I venture to say that there are few that listen over the diseased area before giving a dose of tuberculin. Those that do so systematically are surprised at the comparative frequency with which increase of a hundredth or a tenth of a milligram will cause a change in the breath

sounds and the appearance of moisture. I know of no more interesting cases than those few in which the administration of tuberculin can be governed to a nicety by auscultation. Cutaneous reactions are far easier of detection than are focal reactions. They can often be guessed at by the countenance of the patient on entering the consultation room—inspection and palpation will establish their presence.

In every case where a cutaneous or focal reaction (no matter how slight) presents itself the offending dose should be *repeated* and if the reaction be marked should be diminished or dosage should be omitted for a few days. To increase dosage in the presence of one of these two danger signs is to court the presence of that "bete noir" the systemic reaction, which renders the patient ill, does him no good, prevents him from working, and inhibits the results desired from tuberculin.

No matter what variety of tuberculin is being employed, the first two doses of a new solution should be repeated regardless of the appearance or non-appearance of reactionary phenomena. It has been found that reactions occur most frequently at the first or second dose of a new solution—this being because increase is being made by a far larger amount—(as a general rule ten times that of the preceding solution).

When should treatment be discontinued? This depends upon two factors: the size of the dose reached and the tolerance of the patient. Here, fortunately, as we are dealing with patients that are at work, the element of time at their disposal plays no part. If a patient shows perfect tolerance, the maximum dose varies with the particular tuberculin used. With B. F., I do not care to go above 500 or 700 mg—with B. E. 5mg is sufficient, and with O. T. 1000mg is ample. The maximum dose should not be repeated indefinitely, even in the presence of perfect tolerance. Twice is quite enough. Just as prolonged unincreased minute dosage favors anaphylaxis, so prolonged high dosage favors exhaustion of the defensive armamentarium and predisposes to relapse.

When we consider the tolerance of the patient as the criterion for the cessation of dosage we come to a far nicer and more delicate decision. Again let me emphasize the point that with the wage-earner all systemic reactions must be avoided. If a patient has well tolerated let us say 50mg of B. F. and at 60mg has a sharp cutaneous and focal reaction, if after diminution to 30mg and gradual increase to 60mg the same symptoms again show themselves: stop—the patient has reached the limit of tolerance, and any further advance in dosage will work harm. Doses of from 30 to 50mg can be repeated for a variable length of time. I am convinced that when a certain dose has been tolerated, let us arbitrarily set it at 10mg of B. F., 50mg of O. T., and 0.1mg of B. E., a patient will derive practically as much benefit from moderate amounts as from very high dosage. Of course, with perfect tolerance, it is foolish not to increase; but the factor working for the betterment of the patient is the *size of the dose as compared with the tolerance of the patient.* This must never be forgotten.

Symptoms so slight as to be almost negligible are occasionally of great importance. Lassitude, lasting several days, some pallor, slight headache, a vague sense of lack of well-being, loss of appetite, slight insomnia, any of these may denote that the limit of tolerance is about to be reached. Of course all these symptoms may be due to totally other causes, but it is wiser to attribute them to tuberculin. Then the error, if error there be, is on the safe side.

### Supplementary Courses.

That these are of value is unquestionable; that they are but rarely practiced is but too true. The average patient pursuing a hygienic-dietetic regimen and taking tuberculin as well, goes away in from six months to one year from the time of his arrival and is seen no more save in the event of his return as the result of a breakdown. It is pre-

cisely in preventing such breakdowns that tuberculin is extremely useful. The immunity conferred by the good tolerance of moderate or large doses of tuberculin is not a permanent immunity. It gradually wears off and loses its effect. How long immunity conferred by tuberculin remains efficient has not been determined—it is roughly estimated to be between six months and one year after the end of the first course of treatment, and to endure for a longer period of time after each supplementary course. Lawrason Brown[2] states that "Petruschky has found that in patients with tubercle bacilli in the sputum tuberculin susceptibility (to .001, .005, .010 gr.) returns ini about an average of three months, and he insists that when tuberculin susceptibility returns the patient is not cured, and should take more tuberculin. If absent, the test should be repeated at the end of 3 more months, and if reaction takes place tuberculin is given. Koch upholds Petruschky, and C. Spengler gives up to .01 gr. for this purpose. Denys, who prolongs his first course of B. F., found reaction to .005, .010 gr. of O. T. in three patients after five, twelve and nineteen months respectively."

The only positive test (for the all-too-frequent relapses and breakdowns are in reality negative tests) is that with old tuberculin. In the preceding paragraph Petruschky does not state the dose tolerated by the patient nor the time during which treatment had been carried on. As Petruschky is the founder of the so-called "etappen method" (tuberculin every three or four months for three or four months), it is probable that no very considerable dose was attained. If a patient has been treated with O. T. and has tolerated, let us say, anywhere from 100 to 600 mg, it is hardly probable that he will react within a year to 5 mg., especially if during that time there has been no sign of relapse. Other products like B. F. and B. E. immunize against O. T. Of course if within a year after the cessation of treatment (especially if fairly high doses have been tolerated), a patient reacts to 5 mg. of O. T., he has a tuberculous focus that can hardly be said tc be quiescent. If, however, he does not react to O. T., we do not know whether it is because no focus exists or because his acquired immunity to O. T. has not worn off.

In any event a supplementary course of tuberculin should be insisted upon as being a most efficient prophylactic. This is especially true with the class of patients with which this paper deals. As a broad general rule an interval of from six to ten months should be allowed between the first course of tuberculin and the first supplementary course. This latter can be begun with a much larger dose than was the first (Denys), and should not last over three months. A second supplementary course should be given one year after the end of the first and others at intervals of eighteen months or so if thought advisable.

With a patient that is at hand, to whom time is no object, and that can be under observation, three supplementary courses should be given. They are not irksome, they should not impose a pecuniary hardship upon the patient, and they reenforce his resisting powers from time to time—especially does he need this reenforcement while at work and consequently unable to pay great attention to other elements of treatment. Almost too much has been said of late concerning active treatment with tuberculin. Not enough has been said concerning prophylaxis by means of this substance. True, the time is not yet here when the child of a tuberculous parent will be given tuberculin prophylactically—as a matter of fact the desirability of such a procedure is very questionable—but the intermittent reenforcement of the powers of the body working for immunity to tuberculosis in an individual already afflicted with the disease, is too important a chapter to be passed over lightly.

I believe that it is in cases like those of wage-earners that tuberculin has one of its most useful fields. Its administration begun

on the foundation laid by a strict regimen of hygiene and diet finds the body at the outset in a receptive and comparatively well-prepared condition. Continued with moderation and with care, unhampered by the necessity for haste, aided and abetted by the constant physical supervision of the patient, finally sustained by short supplementary courses, it becomes the most potent medicinal agent in preserving the health and strength that have been restored by those three great surpassers of all specific medication: rest, fresh air, good food.

33 Haywood Street.

[1]Tuberculin in pulmonary tuberculosis, with particular reference to the administration and dosage of Denys' tuberculin, Journal of the American Medical Association, May 2, 1908.

[2]Specific treatment of tuberculosis, in "Tuberculosis —a Treatise by American Authors," edited by Arnold C. Klebs.

# MODERN ADVANCEMENT IN GENITO-URINARY SURGERY

BY PERRY BROMBERG, M.D., NASHVILLE, TENN.

Recent advancement has been great in practically all departments of medicine; but in none has there been more brilliant results than in the field of genito-urinary surgery. The facility for reaching a diagnosis without subjecting the unfortunate patient to the dangers of an exploratory operation, to say nothing of the haphazard methods of diagnosis in vogue a few years ago, has received a notable impetus within the past few years. This advancement may be justly attributed to the rapid development of the art of cystoscopy, to the marvelous improvement in the manufacture of these instruments, and to the larger number of skilled workers who are devoting their energies to the further improvement of this department of diagnosis, which has resulted in such valuable discovery as the ability to measure the permeability of the kidneys by functional tests.

We are now thoroughly convinced that clinical history is not alone indefinite but often misleading, and that the laboratory examination of the mixed urine is sadly deficient in furnishing the required information, while the X-Ray, except in case of stone will afford no positive data. Only yesterday a gentleman consulted me for blood in his urine, bringing a specimen recently passed with him. His first remark will serve to illustrate the fallacy of attempting a diagnosis by clinical symptoms. He said: "Dr. I haven't a pain, am as well as I ever was in my life, but noticed yesterday that my urine was bloody and since it has continued so, thought best to come to see you." Careful interrogation failed to elicit anything further, except a rather indefinite history of increased frequency of urination. Without the aid of the cystoscope and the newer methods of diagnosis, I would surely have been unable to arrive at an approximate diagnosis in this case.

Prof. Chetwood, in a recent article, published in *Surgery, Gynecology and Obstetrics,* says: "Cystoscopy, urinary segregation combined with functional tests, by means of indigo carmine and phloridzin, and an observation of the comparative qualitive and quantitative urinary functions of the two kidneys afford the most reliable and best measures of reaching an accurate diagnosis."

I would emphasize the above statements, and would unhesitatingly say that the methods just enumerated offer the only means at our command whereby accurate and scientific data may be obtained. With confusing clinical symptoms, such as are commonly seen it is quite surprising how accurate and precise a carefully conducted examination by the methods enumearted will prove to be. Unfortunately, these methods are not yet perfected, but are gradually undergoing change and modification in the crucible of experience, which bids fair to become a permanent and most useful method, which will enable us to locate with accuracy the existing pathology. No single expedient at the present can be wholly reliable, but by resorting to a judicious combination of the measures now in vogue our results may be said to be more accurate than by any other combination of methods known.

"For the past century the efforts to examine the interior of the bladder has been the aim and purpose of many individual workers, and the wish and hope of all who are interested

in this department of medicine. As early as the beginning of the eighteenth century cystoscopes were devised by Fisher, Segalis, Cruise, Furstenheim, Stein and others. They were built upon the same principles with but little variation, consisting of a straight tube which was passed through the urethra and a light was reflected from without. It is quite easy to see how this method would naturally be defective, since only a small area of the bladder could be seen, scarcely larger than the lumen of the examining tube, not to speak of the faulty illumination. All credit for the present perfected condition of this valuable means of diagnosis must be given to Nitze, who in 1877 first introduced the two elemental principles, namely, introduction of the source of light directly into the bladder, and enlargement of the field of view by his periscopic arrangement with a system of lenses. This instrument, though suggested by Nitze, was in reality the product of Leiter, the Austrian instrument maker in Vienna, he having perfected the idea advanced by Nitze, receiving suggestions as to the lense system from an optician named Beneche. The introduction of light into the bladder had been previously adopted by Bruck in his method of diaphonoscopic illumination, which was impracticable owing to the excess of heat and liability to burn from white hot wires in the bladder, though he himself suggested and adopted the water cooling system, which was further improved upon by Nitze, who suggested the glass window to cover the wires. The cooling system connected with the irrigating apparatus around the platinum wire rendered the instrument so complicated and so uncertain of application that it could be used only with difficulty, or not at all, for this reason cystoscopy did not gain a foothold as a practical method in the hands of urologists and surgeons. With the advent of the Edison lamp, the complicated irrigating and cooling system could be dispensed with and cystoscopy became at once a practical method of examination, though until late was not generally adopted by the surgical profession. First, as a reason for its non-adoption were its technical difficulties and shortcomings, but after the technical features were highly developed the profession hesitated to take up cystoscopy mainly for the reason that, as a rule, cystoscopic examinations were not systematically adopted, but only occasionally, when a case forced a cystoscope into the hands of a surgeon. One not equipped with sufficient experience would fail to elicit satisfactory results, which terminated in dissatisfaction with the instrument and the method. It has been a frequent mistake to expect the cystoscope to work like a charm, and would furnish results without calling for the application of experience, logic, and comparison with normal conditions, which form such an intrinsic part of the diagnostic art. Often it was supposed that all that was necessary to make a diagnosis was to insert the cystoscope into the bladder. If the observer under such circumsctances failed, the whole method was denounced as ineffective and was condemned and dropped. Another obstacle was placed in the way of a general acceptance of cystoscopy, in that men recognized as leading surgeons advocated the method necessitating air dilation of the bladder. This disagreeable feature of the proceeding, the dilatation of the urethra, the necessity of employing general or local anesthesia, as well as placing the patients in repulsive and disagreeable positions certainly prejudiced a great many surgeons against cystoscopy in general. Another instance was that prominent surgeons, relying on their vast experience and their intuition, declared cystoscopy unnecessary for exact diagnosis. Thus it happened that for many years cystoscopy remained a kind of mysterious monopoly, practiced and exploited by only a few; but, after the younger generation was trained more and more in the recognition of exact methods of exploration and diagnosis, cystoscopy gained ground, and is now one of the firmly established aids to sur-

gery." There is at present an effort being made to swing back in the other direction, and to again resort to the simple tube lately suggested by and known as the Kelly cystoscope. This method, to my mind, has at least two of the disagreeable features already mentioned, namely, disagreeable positions and necessary local anesthesia, which are not required, as a rule, with the cystoscopes I am in the habit of using, namely, Nitze for direct inspection and the Brenner for ureteral catheterization. The modern cystoscope, built after Nitze's ideas, are of such size and shape that except in very rare instances they can be used to full satisfaction without the employment of local anesthesia, and without causing more discomfort to the patient than an ordinary sounding would. There is no necessity for placing the patient in an uncomfortable position. It is not my purpose or intention to exploit any form or kind of cystoscope, they are all good in the hands of one trained to their use, but like so many other things in life, we naturally lean to the instrument or appliance which has been of service to us, and with the use of which we are familiar. Of the various cystoscopes manufactured in this country and abroad the Brenner, Nitze-Leiter and Bransford Lewis cystoscopes seem to fulfill the requirements; the two former being of foreign manufacture and the later a typical product of American genius. The technic of cystoscopy may be briefly summarized as follows:

The patient should be placed flat upon the back in the lithotomy position, either upon a table or bed, elevated to the proper height, the legs to be supported by a special supporter found upon most surgical tables or chairs, or they may be held by an assistant. The genitals are then thoroughly cleansed by washing with soap and water, followed by bi-chloride solution 1:5000 and a sterilized catheter introduced into the bladder. The urine so obtained should be kept for subsequent comparison. If it is not clear the bladder is washed repeatedly with distilled water until it comes away perfectly free from shreds or other foreign matter, the bladder then being filled with a 2 per cent boric acid solution and the catheter withdrawn.

Insertion.—The cystoscope to be used, having been selected and having been previously sterilized, is now well annointed with sterilized alboline preferably. Care should be used not to annoint with vaseline or other similar lubricants, for greasing and smearing of the window will occur and obscure the vision. After testing the lamp, the instrument is now ready for introduction and is passed along the urethra just as a sound, being careful to keep the button on top directed forward, as it indicates the direction of the beak of the instrument. As it slips into the bladder the patient will feel a sense of relief and no further pain should be complained of. The cystoscope should now be carried as far into the bladder as possible, in fact, until it is felt to touch the posterior wall. It is now withdrawn a short distance and you are ready to place your eye to the optical end of the periscope. I advise that the eye be accustomed to look into the dark tube before the light is turned on, for the contrast will be much greater than if the reverse be true. The first object to be seen will be a bubble the size of a small marble, and indicates the relation of the surface of the fluid to the superior limit of the bladder. We now slowly withdraw the instrument until the field of vision is divided by a dark transverse line, above will be a bright, illuminated field, while below we see only a dark shadow. This line is caused by the prostate in males, or the posterior layer of the triangular ligament in females. Keeping the instrument at this point we now change the direction of the beak by rotating the instrument, and the transverse line will become oblique or vertical, depending upon the amount of rotation. The illuminated half will be either to the right or the left, depending upon which way the instrument was rotated. We are now able to see the veins and capillaries of the bladder mucosa and to care-

fully inspect this half of the trigone. The examination is not complete for this portion until the rosy mouth of the ureter is located and its exact appearance mentally recorded. It will be found most readily by sinking into the bladder with your cystoscope and carrying the eye-piece towards the oppoiste side.

Having definitely and carefully observed every portion of this half of the trigone, we now rotate the instrument a half circle and repeat for the opposite side, comparing carefully the one with the other. If, during the examination, the patient complains of very great pain, turn off the light, for it will most likely be due to too close proximity between the lamp and the bladder wall. The trigone having been carefully examined, pathology should be located in 90 per cent of disease of the bladder. The remaining portions of the bladder, with the exception of a small area on the posterior wall, which cannot be seen with the Nitze reflecting cystoscope, may be thoroughly examined and carefully inspected in detail. One important factor is the focusing, for like an opera glass, it must be adjusted to each pair of eyes. This is done by carrying the lense closer to or further from the object. This is often the cause of failure to the inexperienced, especially in ureter catheterization, and will require some practice before expertness will be obtained. I shall not detail the method of ureteral catheterization, for it would in great measure be but a repetition of what has already been said.

Having learned the technique of cystoscopy, I would call your attention to some of the conditions which not only call for, but actually demand this method of examination, as well as other obscure diseases in which it will prove an important means of arriving at a diagnosis, which otherwise might escape the less careful observer. I would also call attention to the fact that by this method of examination it has been possible to examine systematically a great number of individuals; in this way a vast store of knowledge has accumulated, thus defining all the different pictures a healthy bladder can offer, and differentiating them from pathological conditions.

"It became possible to compare the clinical symptoms with the findings of the cystoscope and to correct or confirm cystoscopic diagnosis by the operative and post-mortem findings. The whole chapter of vesical catarrh and cystitis—for years a confusing chaos became classified by systematic research, so that at the present time desquamative catarrh, gonorrheal cystitis, tubercular cystitis and various other types are well defined in their pathological, clinical and cystoscopic characteristics. The knowledge that obstinate cystitis might be maintained by torpid ulceration is one of the advancements of cystoscopy, and it is hardly conceivable how a solitary ulcer in the bladder would be diagnosed without direct inspection."

There is no way so clear, decisive and certain in diagnosing tumors of the bladder as by the use of the cystoscope. We get information as to the relation, as to the shape, as to the size, and as to the surface of the tumor. By cystoscopy the erroneous belief that all hemorrhage from the bladder was due to tumors has been corrected and the cause definitely located either in the prostate, vesical ulcers or varicose veins. Vesical calculus might escape detection, even if the most experienced hand uses the explorative sound, but the cystoscope would hardly fail to detect the stone; and at the same time it will give full information as to its nature, its size and its location; it will tell whether the stone is free or partially encysted. The same exploration will furnish all the details as to the condition of the bladder wall. How important all these points are in deciding on the choice of operation does not need any explanation. Cystoscopic examination has furnished a valuable fund of information in prostatic hypertrophy. It enables the observer to determine the presence or absence of inflammation; he is able to determine which lobes are involved;

whether the hypertrophy tends towards the perineum or bladder, definitely determines the existence of a Holmes lobe which could not be otherwise determined, and enables the surgeon to intelligently select the operation for the relief of the prostatic obstruction.

Diverticula, so often a cause of great distress for the patient, have been successfully removed after having been diagnosed through the cystoscope, and the inflammation around a patent urachus lost their mysterious character since the cystoscope repeatedly diagnosed such cases readily and correctly. In specific and non-specific ulceration great relief has been given by endovesical treatment through an operative cystoscope, as well as controlling the hemorrhage and pain of inoperable malignant tumors, all this without subjecting the patient to the dangers and to the tedious after-treatment of suprapublic cystotomy. This method has had triumphant success in detecting and removing foreign bodies; in recognizing pus or blood as they issue from ureteral orifices; in recognizing pericystitis with inflammatory attachments to tumors of the uterus, tubes or other structures. Vesico-vaginal fistulae very often furnish an object for important cystoscopic examination. If the fistula is located near the trigonum it is of paramount importanec to know the relation of the ureteral openings to the edges of the fistula so as to avoid injury to the ureter in freshening the cicatricial edges and determine the necessity for the flap operation." While the recognition of these conditions offers much for which we should feel grateful, and which speak in highest terms for cystoscopy, still its greatest and most beneficial field of usefulness lies above the bladder, for by this method we are enabled to almost see into the pelvis of the kidney. The segregator, with its always doubtful results, has been pushed aside and no longer does the modern surgeon give credence to its findings, while with the cystoscope the perplexing puzzles of hematuria and pyuria have been revealed, causes isolated, conditions classified, and the profession today possesses a more intelligent understanding than ever before. Modern kidney and ureteral surgery may be said to date from perfected cystoscopy, and without its aid this class of surgery would lose its most valuable ally. The simple ocular inspection of the ureteral openings will reveal a wonderful amount of information. A protruding, gaping ureteral mouth indicates almost invarably some pathological condition in the kidney and makes further searching investigation in this direction imperative; repeatedly, impacted ureteral stones have been seen protruding out of the opening and have been removed. If ulcerations are found around a ureteral opening and the ureteral mouth inflamed, the diagnosis of descending vesical infection is made and the search for tubercle bacilli becomes necessary.

With the aid of catheterization and the sounding of the ureters, great advances have been made in both diagnosis and therapy of pathological conditions of the ureters and of the kidneys. A sound introduced into the ureter will give information as to the patulence of this tube; it will permit one to locate the seat of an obstruction, and with the wax-tipped ureteral catheter of Kelly, also its character; it permits a differentiation between ureteral calculus and stricture; it aids materially in locating ureteral fistulae, and has been known to cure them by affording temporary drainage. It enables, through the injection of oil, suggested by Kollicher, to dislodge ureteral calculi, as well as to perform lavage of the kidney pelvis. In Vienna, where I first studied cystoscopy, it was the custom to pass catheters into the ureters of patients upon whom hysterectomy was to be performed in order to avoid injury to these important tubes. The rapid development of kidney surgery put new demands upon the field of usefulness already occupied by the ureteral catheter and the cystoscope. It became important to collect separately the urine of either kidney, and this gave rise to a new clinical entity and a new

surgical problem, the functional capacity of the kidneys. Chromocystoscopy, cryoscopy, phloridzin and the electric conductivity tests became possible and efficacious only by the employment of cystoscopy and ureteral catheterization.

The combination of X-ray examination and ureteral sounding was another brilliant advance in refining our methods of diagnosis, for by this method we may determine the location of tumors of doubtful nature and may accurately locate ureteral and renal calculi.

# NEPHROLITHOTOMY

BY MANNING SIMONS, M. D., Charleston, S. C.

I beg leave to read the following history of a case of *Nephrolithotomy* as an introduction to a few remarks on the subject of Nephrolithiasis.

A. B., a railroad machinist 36 years old, was well up to twelve years ago, when he commenced to suffer with a dull, persistent pain in the right lumbar region. The pain, which came on at night, was at first only slight, but later in the night became very severe. This attack was accompanied by the passage of bloody urine, which continued for about three days. After this the urine cleared up, but the pain remained, although not so so severe.

These severe attacks came on at intervals of about three months. He was first taken sick at Darien, Ga., where he was treated for stone in the kidney. About one year later he went to Savannah, where he was treated by a specialist for one year, and later by another physician, who sent him to White Sulphur Springs, Florida. This helped him, but the pain still persisted.

He remained at the White Sulphur Springs six weeks, and from there went to Americus, Ga., where he had a severe attack of fever accompanied by the passage of a large amount of blood in the urine, and the pain in the back was at the same time very severe.

This attack, which was diagnosed as hemorrhagic malarial fever, laid him up for two months.

He then returned to Savannah and left off all treatment. From Savannah he went to Florence, S. C., where he was treated for muscular rheumatism. From Florence he went to Sumter, where he was treated for stone in the kidney.

From Sumter he went to Baltimore and sought the advice of a distinguished specialist, who submitted him to two exposures of the X-ray without locating a stone in the kidney.

One year later he came to Charleston and consulted me.

After a careful study of the history and symptoms of the case, I made a diagnosis of stone in the right kidney, and sent him to Dr. W. H. Johnson for examination by the X-ray. This examination gave a negative result. This was four years ago. He returned to Florence and left off treatment, but the pain still persisted, severe attacks with the passage of bloody urine continued to recur at intervals of about five or six months. About two years later he developed specific trouble with chancre. The sores having healed, he went to Hot Springs and was treated for rheumatism. After remaining at Hot Springs for six weeks, he returned to Florence, and was much better for a time, but the pain still persisted. He went back to Hot Springs last March, where he had an attack of severe pain in the right lumbar region with the passage of bloody urine. He was treated for liver trouble, but later a diagnosis of stone in the kidney was made. On this occasion he remained at Hot Springs only twelve days.

He returned to Charleston in the early part of April for further examination and treatment. During my absence from the city he was sent by Dr. Mullally to Dr. W. H. Johnson for X-ray examination. Dr. Johnson sent to the patient the following report:

"I think the radiograph came out very nicely, and there is a shadow which I take to be a shadow of a stone in the right kidney pel-

Read at the Meeting of the Medical Society of South Carolina, held at Charleston, S. C., May 15, 1909.

vis, or a little below in the upper part of the ureter. There is a very interesting shadow also shown in or near the spinal column, which I cannot positively explain, but would need further study. It may be very important. I consulted an expert photographer, and he says that he does not think that it is a defect in the plate."

The patient was admitted to St. Francis Xavier's Infirmary on April 5, 1909, and I operated on him on April 12. The usual lumbar incision was made over the right kidney about four inches in length, but it was necessary to prolong this much below the ilium because of the difficulty in delivering the kidney through the wound. This difficulty was due to the presence of adhesions of the kidney to the surrounding parts, and in the endeavor to separate these there was a small laceration of the kidney on its under flat surface from which there was a free hemorrhage. The kidney after delivery was carefully palpated, but although the pelvis was thickened and indurated, the presence of a stone could not by this means be demonstrated. The kidney was, therefore, incised along its convex border from one pole to the other, and the kidney explored with the finger. On reaching the pelvis a stone was detected and removed with forceps.

A catheter was passed from the kidney into the ureter to the bladder in search of other calculi, but the passage was found to be unobstructed. The hemorrhage from incising the kidney was not profuse, and was checked by showering with hot saline solution.

This having been accomplished, the incision in the kidney was closed with deeply placed interrupted sutures of chromicized catgut. After a rubber drainage tube had been introduced down to the kidney the muscles were brought together with interrupted chromicized catgut sutures and the skin wound was closed with silk worm gut.

The stone was flat and triangular in shape, about one inch in its long diameter and about three-quarters of an inch at its base.

I regret that no examination was made to determine the composition of the stone, but this was impracticable, as it was not desired to destroy the specimen.

The patient passed twenty-one ounces of clear urine during the first twenty-four hours after the operation, but during the next twenty-four hours, whilst the urine was passed in greater amount, it contained blood in quantity visible to the naked eye.

The patient has made practically an uninterrupted recovery and is going about, although there is still some slight discharge of urine, and a little pus from the lumbar incision, necessitating a change of dressing twice a day.

He is passing by natural passage a normal amount of clear urine. His pain has disappeared and he is gaining in flesh.

The history of this case presents several interesting points from which instruction may be derived by their true reading and careful study.

1. The long time (twelve years) that elapsed between the development of the symptoms in this case and the operation for the removal of the stone, although the patient had been under almost constant observation and treatment by a number of intelligent and capable physicians and surgeons.

2. The varying diagnoses made by a number of physicians and surgeons, which, in view of the facts later developed, could have been determined by a study of the symptoms presented in the case.

3. The seeming unwillingness of the surgeons who diagnosed the presence of stone in the kidney to submit their judgment to the practical arbitrament of surgery, indicating an uncertainty in their own minds of its correctness.

4. The failure of the effort to locate the stone with the X-ray on three of the four occasions on which it was applied.

The present-day treatment of nephrolithiasis marks an epoch in the history of the develop-

ment of the surgery of recent years and has transferred the condition from medicine to the domain of the surgeon.

Whilst it is not my intention this evening to speak of the surgical treatment of stone in the kidney, there are certain principles involved in it that it is necessary for me to touch upon.

The surgical treatment of renal calculus resolves itself into nephrolithotomy, nephrotomy and nephrectomy.

It is necessary in order to gain a clear idea of the principles on which surgical treatment should be based, as well as to obtain a proper appreciation of the results of the various operations, that a sharp distinction should be made between nephrolithotomy, nephrotomy and nephrectomy.

Nephrolithotomy aims at removing the stone and leaving a useful and healthy kidney.

Nephrotomy consists in cutting into a disorganized kidney, whether the kidney is enlarged or not, and whether the cause of the disorganization is stone, tubercle, or some other disease or injury.

"Inasmuch as stone is one of the commonest causes of pyelitis, and calcareous pyelitis one of the commonest cause of tumors formed by purulent or urinous collections in the renal cavity, nephrotomy has been more frequently than not followed by the discovery of a stone. But in too many of these cases it has been the tumor in the flank which has led to operation, the stone having been allowed to go on in its work of destruction, until it culminated in a large purulent collection, which it would be unsafe, if not fatal, to leave unopened."

Nephrolithotomy, therefore, is the operation for stone in the kidney.

Nephrotomy is the operation for calculous pyelitis or calculous hydro-nephrosis or pyonephrosis.

Nephrolithotomy is a conservative operation, the object of which is to save the kidney. Nephrotomy is performed when the kidney is more or less destroyed, and often when there is little or no kidney to save.

With early and accurate diagnosis of stone in the kidney nephrotomy or nephrectomy should rarely be necessary.

The history of the case above recorded points to an evident fact that the diagnosis from symptoms, physical examination, and the employment of modern instruments of exactness is not always easy, and in some cases is practically impossible.

For these reasons I venture to invite your attention to a consideration of the symptoms, the collection and study of which render the diagnosis of stone in the kidney practically possible.

A stone may develop, travel along the urinary passages and escape without giving rise to any symptoms.

A stone of moderate or even large size may remain in the kidneys for years without causing any noticeable symptoms whatever, and may be discovered only on autopsy.

In the great majority of cases, however, there are some symptoms indicating the presence of stone in the kidney.

There are, however, many sources of error which militate against the proper appreciation of symptoms that point to the presence of stone.

There are numerous morbid conditions that give rise to symptoms of typical renal colic, and in many cases the symptoms due to renal or ureteral calculus are not referred to the kidney or ureter, but to some other organ.

It may be said, therefore, that renal calculus may be present and not be suspected in some cases, because the calculi cause no symptoms; the symptoms may be referred to other organs than the kidney or ureter, or the calculus may cause high temperature and other general symptoms with no local manifestation.

There are cases reported in which a calculus after existing for years, has set up perinephritic abscess without having previously caused any definite renal symptoms.

Calculus may be unsuspected because the symptoms may be referred to the bladder,

ovary, uterus or testicle instead of the kidney.

I have in mind a lady upon whom Boseman, of New York, years ago made a vesico vaginal fistula, who years after passed a renal calculus one inch in length with disappearance of the symptoms of cystitis.

Morris mentions a similar case in which a fistula was kept open for nearly ten years, when a renal calculus was removed and the fistula closed without any return of symptoms.

Stone in the kidney may give rise to symptoms which are erroneously ascribed to misplaced or deflected uterus, and there is an interesting case of this kind reported, in which a woman who had been treated with pessaries for eight years, was relieved of her symptoms when the kidney was operated on.

Franks, quoted by Morris, refers to a woman who is said to have had both ovaries removed before her troubles were finally dissipated by the extraction of a stone from her kidney.

There is a group of cases in which the patient is ill with symptoms resembling typhoid fever, but with none of the ordinary symptoms of stone. Morris reports a case of this kind in which the illness terminated after the discharge from the kidney of a few ounces of pus and some renal calculi.

In summing up the symptoms in a case of suspected renal calculus, it should be remembered that a renal calculus after exciting marked and apparently characteristic symptoms, may remain quiescent for long periods, and that in such cases pyonephrosis, renal abscess or calculus anuria may be set up at any time.

With all the sources of error to render a difficult diagnosis more complex, there are some symptoms that point very positively to the presence of stone in the kidney, such as one or more attacks of renal colic, some lumbar, abdominal or inguinal pain, aggravated by exercise or any jolting motion, some blood or albumen mixed with the urine, some vesical irritability, perhaps some pain in the testicle of the same side.

Blood is not invariably present in the urine, but as in the case I have reported, it may occur from time to time in large amount.

If stone has existed a long time albumen or pus will be found daily in minute, or moderate, or marked quantity in the urine.

A renal calculus may remain fixed in the kidney substance or in a calyx, or may occupy the renal pelvis within which it can move about, or it may migrate along the ureter towards the bladder. In either of the latter conditions it will probably give rise to renal colic.

Renal colic may return from time to time either from the change of position of a more or less fixed stone, or from the fresh formation of stones.

In the case that I have reported there was a marked tendency to periodicity in the recurrence of the attacks, at intervals of five or six months. This peculiar characteristic has been noted by systematic writers on this subject.

An important point to remember is that periodic attacks of renal colic occur in some cases without being followed by the discharge of a calculus or a fragment of a calculus. In respect to diagnosis it should be remembered that such attacks may be due to the irritation of a calculus in the pelvis or one of the calyces of the kidney, under the influence of movement or jolting.

Apart from the attacks of renal colic one of the commonest symptoms due to the continual presence of a stone in the kidney is renal pain.

Haematuria is one of the most frequent symptoms of calculus, and microscopic traces are almost invariably present at some period or other. It may precede, accompany or follow renal colic.

It should be remembered that the constant presence of a few blood corpuscles in the urinary sediment, as a matter of diagnosis, is as important or even more important than pronounced intermittent haematuria.

In this connection I would mention that one of the most distinguished specialists in this country on urinary diseases put one of my patients on a milk diet with large doses of quinine, after a careful examination, because of the discovery of blood corpuscles in the urine. This patient was completely relieved some months after by the passage of a renal calculus.

In many cases of renal calculus there are traces of pus, at times only microscopic, but often even evident to the naked eye, due to a slight degree of pyelitis unaccompanied by any fever or other constitutional signs.

The pus of pyelitis occurs in acid urine, is not stringy, and separates readily from the urine on standing.

A careful examination of the urine ought to be made in every case of renal calculus or suspected calculus.

It is important to ascertain the presence or otherwise of albumen, of microscopic quanties of blood, of leucocytes, and traces of pus —of crystals or casts of renal tubules.

"Sometimes the microscope leads to the unexpected discovery of the eggs of the Bilharzia."

Hyaline casts are present in a large number of cases of renal calculus, and their presence indicating, as it does, renal irritation, together with other symptoms of renal calculus, is of great diagnostic importance.

Physical examination often throws light on the case. When the patient is thin and the stone is large, it can sometimes be detected by palpation.

Howship, quoted by Morris, speaks of a patient who used to feel the stones in her kidney grating together on movement.

Pick published in the Lancet (Morris) a case in which he made the calculi grate upon each other by bi-manual pressure with his hands placed on the loin and on the front of the abdomen.

Tenderness over the affected kidney will often be complained of when pressure is made on the loin or on the front surface of the organ.

Taken along with tenderness on pressure over the affected kidney, another indication of some value is a marked difference in the degree of hardness of the muscles of the abdominal parietes over the two kidneys.

As in pelvic disease, the gait and attitude of the patient constitute a valuable indication. The peculiar gait and attitude of the patient with renal calculus are due to an effort to relax as much as possible the abdominal walls, and especially the great psoas muscle, so as to remove all pressure on the kidney.

In analyzing the symptoms in a case in which stone is present or suspected, it is sometimes impossible to judge from the actual point to which the patient refers his pain, whether a calculus (if one be present) is in the kidney substance, the renal pelvis or the ureter.

With a calculus in the kidney, the only or the greatest suffering may be referred to the middle of the ureter, or with a stone in the ureter the reference as to pain may be made to the kidney itself.

"In exceptional cases the diagnosis may be assisted by cystoscopic examination, and the introduction of the ureteral catheter or the ureteral sound."

According to Morris, it is only, however, in very exceptional cases that these methods, difficult of application in the male, not altogether free from danger, and not always to be relied upon as to results, will need to be employed.

Hopes have been and are now entertained that the Roentgen Rays may be of some service in determining the presence or absence of renal and ureteral calculi, but according to the opinion expressed by Morris, "hitherto they have afforded but little reliable help in this direction."

Leonard, however, on the other hand, goes so far as to state "that the presence or absence of calculi can be fully established, that

such definition and detail are possible that an absolute positive and negative diagnosis can be secured in such cases—the outline of the kidney itself being demonstrated in the negative cases."

Some of the uncertainty of the results of X-ray examination depends upon the nature of the stones themselves.

Morris recorded November 14, 1906, the effects of the X-rays upon biliary and different kinds of renal stones photographed out of the body. He showed that the oxalate of lime calculi throw even deeper shadows than bone; that phosphate of lime calculi and mixed calculi composed of a nucleus of uric acid and alternate layers of fusible calculi and uric acid also give dark shadows, but that a pure uric acid calculus gives only a faint shadow about equal to that yielded by biliary calculi, and a little deeper than the normal kidney itself.

In the case I have reported the X-ray failed on the first three occasions in which it was employed, and on the fourth gave a very faint shadow. I am inclined to think that this was due to the nature of the stone. In its primary condition it was probably a uric acid calculus. This was the nucleus upon which the secondary deposits occurred, and rendered the stone capable of stopping the rays.

In the words of Morris, "The fact remains, however, that up to the present time very skillful and experienced maniuplators have obtained shadows supposed to be due to stones even of large size when no stone has existed, and, on the other hand, have failed to obtain shadows of really existing stones."

The absence in my case of most of the gross changes or complications of calculus may be, I think, accounted for by the shape of the stone. It was triangular and flat, therefore it did not exercise a ball valve action in the pelvis of the kidney and upper part of the ureter.

There was no great obstruction to the flow of urine, and the drainage was sufficiently free to obviate the occurrence of hydro or pyonephrosis, calculus anuria, and infection of the kidney and its surroundings.

Finally, after collecting, grouping and studying the symptoms in any individual case of suspected renal calculus, one may be driven to the conclusion expressed in the words attributed to one of the great masters of modern surgery, "I used to operate on a diagnosis, now I operate to make a diagnosis."

# A PLEA FOR THE OPERATIVE CURE OF HERNIA AND THE EMPLOYMENT OF COCAINE ANAESTHESIA

BY G. PAUL LAROQUE, M.D., Richmond, Va.

To estimate the frequency of abdominal hernia is practically impossible. Statisticians state that about one-tenth the population of the world is affected with some variety of the malady, most commonly inguinal in location. There are said to be about ten thousand cases in the city of Richmond. In Philadeluhia alone, four hundred and fifty thousand trusses are made every year (Marcy). Too many useful citizens are vcitims of this malady, and the writer believes that the public and doctors are less earnest in their efforts to correct this deformity than to remedy certain other ills of much less crippling character.

The usefulness and earning capacity of the victims of hernia are invariably diminished, and the condition in many ways endangers life. From most departments of public service a man with hernia is debarred. He is unfit for the national army, navy and marine service, police duty, and, indeed, for any occupation demanding for its pursuance able-bodied individuals. Many life insurance companies reject applicants for policies affected with hernia, and all such corporations place upon such applicants a greatly diminished life expectancy and increased insurance rates. Any one afflicted with hernia is no more fitted to serve himself and family than he is the national government or municipality, and to neglect or treat lightly an affection which is universally recognized as a cause of diminished life expectancy and physical incompetency is unfair to the victim's family and self and is incompatible with the duty of a conscientious physician.

Perhaps the most immediate and grave danger of hernia is strangulation. Without attempting to estimate the frequency of this complication, it is sufficient to bear in mind that any case of hernia may at any time become strangulated. While this accident most commonly occurs in those in whom some such predisposing cause, as lifting or otherwise straining the abdominal parieties is incident to their occupation or habits, yet it may occur in any one during a paroxysm of coughing or sneezing or during any sudden effort, and to these every one is essentially liable. The exciting causes of hernia are identical with those of strangulation, and every practitioner has seen the condition result from a single strain at stool, sneezing, coughing, suddden effort to prevent falling, and many efforts at lifting.

Incarceration is favored by the very existence of constipation, a common attendant symptom of hernia. Inflammation is invited by the peritoneal contusion incident to all cases treated by truss, and is to be expected, since the accurate fitting of such mechanical devices is impossible, and the maintenance of fit generally impracticable.

A certain amount of enteroptosis is a part of the pathology of the affection, and, in many cases, a distorted structure and position of the enteric canal are present and progressive in severity.

The recurrent colic, indigestion, and other functional disturbances forming a part of the symptom complex of most hernias, are attended by the same impairment of health and dangers of gastro-enteric catarrh due to other causes, in addition to the menacing effects of the hernia itself.

The recurrent, often constant, backache and general fatigue, incident to complete and often incomplete hernia, caused by irritation, traction upon, and distortion of, the delicate, highly organized nervous structures within the peritoneal cavity, are often debilitating and causative of semi-invalidism.

It is difficult to estimate, even approximately, the number of vague cases of indigestion, obscure headache, and other such common and generally miserable complaints due to this cause. Such pernicious effects of hernia should not be overlooked, and, when a careful and intelligent study of each case is made, many such crippling influences may be discovered.

And yet the victims, indeed many of their medical attendants, often attribute little bad influence to an inguinal hernia uncomplicated by incarceration or strangulation, and too often such a condition is treated with no consideration of bad effects and frequently without even a diagnosis.

This condition of affairs is due, in large measure, directly to lack of interest on the part of the physician. The proper treatment of hernia has been attained as a result of steady uniform progress, rather than by sudden sensational leaps, such as have been made in the management of many modern, fashionable affections, many of which are decidedly less menacing to life and health than hernia, but in which the obvious results have been apparently more brilliant. Moreover, patients and physicians have heard of, or personally observed, so many cases of hernia, in which radical operative treatment has been attempted and failed, that they tend to look with skepticism upon any offer on the part of a surgeon to cure the affection in such a way as to aassure against recurrence.

Such a view of the subject, however, at the present time is not justifiable, and it can be safely said that, in the hands of a skillful operator, with a septic technique, almost every case of hernia can be positively and permanently cured.

The treatment of every hernia should invariably be guided by an accurate diagnosis, and this deserves some emphasis. Too often a busy uninterested physician, when told by a patient that he is ruptured, hastens him to a truss fitter or apothecary with a note asking that a truss be fitted. The skillful truss fitter, in many cases to the chagrin of the doctor, recognizes upon examination that the affection is not hernia. Too often the apothecary, less skilled in diagnosis, applies an improper truss, inaccurately fitted, to a hydrocele or a testicle retained in the inguinal canal. The ill-effects of such an insult to the testicle soon become obvious. Many cases of bubo are thus injured, epididymo-orchitis is constantly mistaken for inflamed hernia, and repeatedly gonorrheal inflammation of a retained testicle has been referred to the surgeon as a case of strangulated hernia for immediate operation. The number of cases of varicocele, hydrocele, haematocele and bubo which have been mistaken for hernia are legion. Varix of the saphenous vein, fatty tumors of the groin, cysts of the femoral canal, and other rare affections have also been mistaken.

The first essential in diagnosis, therefore, is to recognize the case as one of hernia. This, however, is not sufficient. Next, it should be determined whether it is of the inguinal or femoral variety, if in the groin; or, when in the region of the umbilicus, whether it is true hernia or an abnormally prominent umbilicus.

In case of inguinal hernia, it should be further determined whether direct or indirect, and at all orifices, whether reducible, irreducible, complete, incomplete, single, double, simple, or complicated. Undescended testicle exists with hernia in about one in sixty cases (Coley), and occasionally the testicle is the seat of sarcoma. When possible, it should be determined whether the gut, omentum, or both are present in the sac, and whether such structures as the bladder, ovaries or tubes are

herniated. These conditions are not always easy of determination, but the importance of such recognition should be thoroughly appreciated, and every effort made to arrive at an accurate and complete diagnosis.

Moreover, the existence of such inherent factors as chronic cough, frequent straining, difficult urination, stricture of the urethra, enlarged prostate, phimosis, constipation, and all other conditions antagonistic to cure or predisposing to recurrence should be recognized and their treatment constitute a part of the treatment of hernia.

Granting that in every case an accurate and complete diagnosis has been made, what should be the treatment of hernia?

In former years the attitude of the profession has been toward the application only of palliative measures, and this has been the source of the immense fortunes amassed by truss makers.

It is scarcely necessary to reiterate the annoyances, difficulties, uncertainties, and, in many cases, serious dangers incident to the treatment of hernia by truss. The discomfort to the patient attending its constant use is scarcely conceivable. The skin must be carefully attended to avoid the pernicious effects of irritation. Two instruments must be carried continuously in case one becomes broken or otherwise rendered inefficient. The appliance must be worn continuously when in the erect posture, in many cases even during sleep. The truss is constantly in need of repair and must frequently be replaced by a new one. They are so difficult to adjust as to require the service of a truss specialist. No individual is positively cured by the truss method and the harness must be worn throughout life. A very serious objection is that many patients must, either from election or necessity, finally be treated by the operative method. With the sac and tissues so altered as a result of the trauma caused by the instrument, the operation is difficult and attended by many added dangers in an individual so much older and less fit for surgical treatment.

Perhaps the greatest objection to the truss treatment of the affection is the constant danger of the instrument to the patient's life. With a false feeling of security, such individuals are in constant danger of such complications as inflammation and suppuration of the sac or its contents, and at any time the hernia may become strangulated not only at the hernial ring, but also by slipping past and being held in this position by the truss.

Many competent surgeons, however, including Coley, advise the use of a truss in cases of hernia in children under three years of age, claiming that more than one-half of such cases can be cured without operation. The risk of strangulation, however, is admitted by all to be greater in children than in adults, and this should be borne in mind by the doctor and explained to the parents before advising against operation. In female children, Damianos describes sixteen cases in which there was found torsion of the pedicle of the uterine adnexa contained in the sac of inguinal hernia, and while such a condition is rare, it is grave in effect.

So that while it is true that most cases of hernia in young children are curable by a truss, or perhaps spontaneously, yet the total mortality in cases not treated by radical operation is perhaps as great as, if not greater than, in those subjected to operation. The latter has the advantage of precluding the possibility of grave complications, and thus gives a corresponding comfort to the conscience unattainable through the application of a truss.

Until the time of Bassini, the operative treatment was largely of an empirical nature, not based on an appreciation of the anatomy of the affection and region involved and not guided by scientific surgical principles and technical skill. On this account the operative mortality was high, and many cases recurred after operation. Another and frequent cause

of recurrence has been infection. This can now be entirely prevented.

Coley operated upon two hundred consecutive cases, and in only one was there suppuration. At the Hospital for Ruptured and Crippled, in New York, in 2,384 cases there have been less than one per cent of recurrence following operation.

DeGarmo performed one hundred and ten operations for femoral hernia on ninety-nine patients between the ages of eight and eighty-one years. The only death that occurred was that of an old woman seventy-eight years old, on whom the operation was performed for strangulation. A recurrence was observed in only one case. A second operation was performed in this case eight months later, and the patient has now remained well over three years.

The risk of general anæsthesia has been greatly overestimated, even at the present time and near past. There is no need, however, except in children and rare cases of "chicken-hearted" adults, for general anæsthesia, for it has been positively demonstrated in many thousands of cases that by the use of cocaine according to Bodine's method, practically every case can be cured permanently and painlessly with local anæsthesia, and in no case need the amount of cocaine used exceed one-half grain.

It is true the operation under local anæsthesia may require a longer time and that the patient is given the opportunity to note the embarrassment on the part of the operator, if he be unskilled, but fortunately there are plenty of surgeons who have plenty of time and plenty of skill. And it does not seem quite as though we are doing to the other fellow as we would have him do to us, if we deliberately impose on him the even slight danger of ether anæsthesia plus the disagreeable and positively injurious effects of the nausea and vomiting which are sure to follow the recovery from either chloroform or ether narcosis. It has also been alleged that recurrence is more liable to follow when the operation is performed under local, than under general, anæsthesia. The fact is that recurrence is more liable to follow operation by an unskilled, than a skilled, surgeon, and it is generally the unskilled operator who fears for the patient to note his embarrassment during the operation. Local anæsthesia in no way precludes the performance of any operation ever devised for the cure of inguinal hernia, and the surgeon or the patient who should have a recurrence after operation, performed under cocaine anæsthesia, would have the same recurrence after the operation done under general anæsthesia, if the patient lives.

I have performed the operation for the radical cure of hernia painlessly with one-half grain of cocaine, four times, and two of the cases were sufficiently complicated to be of interest.

Case No. 927. A man 57 years old had been operated upon eighteen years previously and had recurrence. At the operation performed by me I encountered the usual amount of scar tissue and four silver wire sutures. The ilio-inguinal nerve was with slight difficulty located and anæsthetized, and a radical operation painlessly performed. During convalescence he developed broncho-pneumonia, and the hernia was coughed down before he left his bed. Three months later when the weather had become warm and he did not fear taking cold, I operated again under local anæsthesia. In spite of the scar tissue of the previous operations, the third operation was painless, and, now since a year has elapsed with no precautions against recurrence, his hernia remains cured.

Case No. 1078. A doctor with congenital inguinal hernia complicated by incompletely descended testicle was operated upon September, 1908, under local anæsthesia. This patient smoked a cigar while I demonstrated to him every detail of the radical operation, including anchoring of the testicle. He is now practicing medicine in a mining region of

West Virginia, and there is no recurrence. This patient developed haematocele after the operation. I evacuated this by puncture, and he announced to me that "this was ten times more painful than the operation for hernia."

With abundant facts, implying as they do a positive and painless cure of practically all hernias without ether or chloroform, without post-operative nausea and vomiting, without mortality and with only two weeks confinement, it is high time the whole medical profession and the public at large should see the advantage of the rational operative treatment of one of the most common, most crippling, and most menacing affections of the human race. The palliative treatment, except in infants and in very rare instances in adults, has no more place in the treatment of abdominal hernia than has internal medication in the management of pyloric stenosis, appendicitis, and many other affections, the reports of which have, in the past few years, occupied the attention of the world.

The treatment of hernia by the injection of such irritating substances as alcohol and iodine is irrational, painful, non-curative, meddling, subject to the dangers of infection, injury to important structures, etc., even more serious than an uncomplicated and simple hernia, and productive of such anatomic alteration as thickening, adhesions and distortion of structures, rendering future operation essential and difficult to perform.

The radical operation for the cure of hernia should be performed as early as possible after the development of the affection while the hernia is simple and small, the structures non-attenuated and undisturbed in their anatomic relations, and before the onset of secondary impairment of health.

It is but right to add that the radical cure of hernia is not one of the easiest, simplest operations of surgery. Indeed, the poor results sometimes seen from this treatment, employed by the unskilled, is in no small degree responsible for the belief that the radical treatment does not guarantee against recurrence. The operation should therefore be performed by those skillful and possessed of technical judgment, not only in the mechanical part of the work, but in being able also to discover and remove or alleviate such predisposing causes as favor recurrence.

There are such surgeons in almost every section of the country at the present time, and there is therefore no longer any more excuse for the persistence of hernia than for the prevalence of epidemics of smallpox, diphtheria and other easily preventable and curable diseases.

There should be a renewal of interest in the cure of this affection, particularly on the part of the general practitioner or family physician; for, while it will doubtless be not many years before the public at large will learn, through surgeons and their patients, the advantages of the operation over the truss method for the treatment of the malady, there should be active co-operation on the part of the family doctor for the good of the public.

219 E. Grace St.

# MULTIPLE SYMMETRICAL LIPOMATA

## REPORT OF A CASE.

BY H. P. COLE, M.D., and GILMAN J. WINTHROP, M.D., Mobile, Ala.

Whereas multiple lipomata are occasionally mentioned by different writers, multiple lipomata with symmetrical distribution is a rare condition.

Senn observed a case in a woman 50 years of age who possessed a lipoma in each axilla. Targlowa recorded a case wherein there were seven pairs of lipomata with symmetrical distribution. Cases of the same nature have also been reported by Oldham, MacCormac, Hutchinson, Mathieu and C. Beck.

### ETIOLOGY.

There is a tendency to attribute this rare condition to a neuro-pathic origin. Grosch attributes this condition to that origin and Hektoen and Riesman state that a nervous (trophic) influence is supposed to play a part in the case of symmetrical lipomata. Stengel also considers that there is a tendency to the growth of these tumors consisting perhaps in some derangement of the trophic nervous system.

Madelung noted the growth of fatty tumors at the insertion of the deltoid muscle following neuralgia. In one of the two cases of multiple lipomata which he reported the neuralgia disappeared after extirpation of the tumor. Mathieu in 1890 described a case in which sciatic neuralgia attended two pairs of lipomata. J. Bland-Sutton states that fatty tumors may grow from the trunks of nerves such as the median at the wrist and from the great sciatic.

### CASE REPORT.

The patient is a white male, a medical student. The family history and past history show nothing in relation to the present condition.

### HISTORY.

Twelve years ago the patient developed a skin eruption. This disappeared and reappeared at intervals for eight years, and was last seen four years ago. The patient recognizes the disease as psoriasis upon being shown illustrations of that disease. There was exfoliation, slight irritation and involvement of some extensor surfaces.

Shortly after the disappearance of the skin lesion the patient noted numerous small masses under the skin. For this condition he consults a physician. He complains of no discomfort or irritation from the presence of these tumors. The tumors have had a tendency to disappear upon massage, some to reappear. Two upon the abdomen have disappeared permanently.

### PHYSICAL EXAMINATION.

The patient is a very well developed muscular individual. There is considerable subcutaneous fat over the entire body. With the exception of the tumors the examination presents nothing abnormal or bearing upon the pathological condition to be now described.

1. At the junction of the middle and lower thirds of each thigh in the anterior median line there is a subcutaneous tumor, oval-shaped, semi-solid to the touch. The tumor is apparently fixed to the subcutaneous fascia and is movable only with the skin. Each tumor is about 3x5 cm. in size, the long axis of the tumor lie in the long axis of the body.

2. Two inches above and two inches to the inner side of each tumor lies a similar tumor at exactly symmetrical points in each thigh. These are slightly smaller and lie in the same axis.

At the junction of the upper and middle thirds of each thigh on the anterior surface there is a similar tumor at symmetrical points. Each is about 2x4 cm. They lie in the long axis of the body.

4. On the posterior surface of each thigh at the upper angle of each popliteal space there lies a similar tumor, slightly smaller in size, same axis.

5. One inch above each tumor in the pop-

*Read before the Medical Society of Mobile, Co., June, 1909.

liteal spaces lies a similar tumor, slightly smaller in size, same axis.

6. On the outer posterior aspect of each thigh at the level of the gluteal fold lies a simliar tumor at about symmetrical points, same axis.

Thus there presents upon the anterior surfaces of the two thighs six tumors arranged in three pairs that present at symmetrical locations and lie in the same axis.

On the posterior surfaces of the two thighs there are also six tumors arranged in three pairs at symmetrical points and lying in the same axis.

The patient states that a similar tumor presented over the lower third of each rectus muscle at symmetrical points. These are not present at examination.

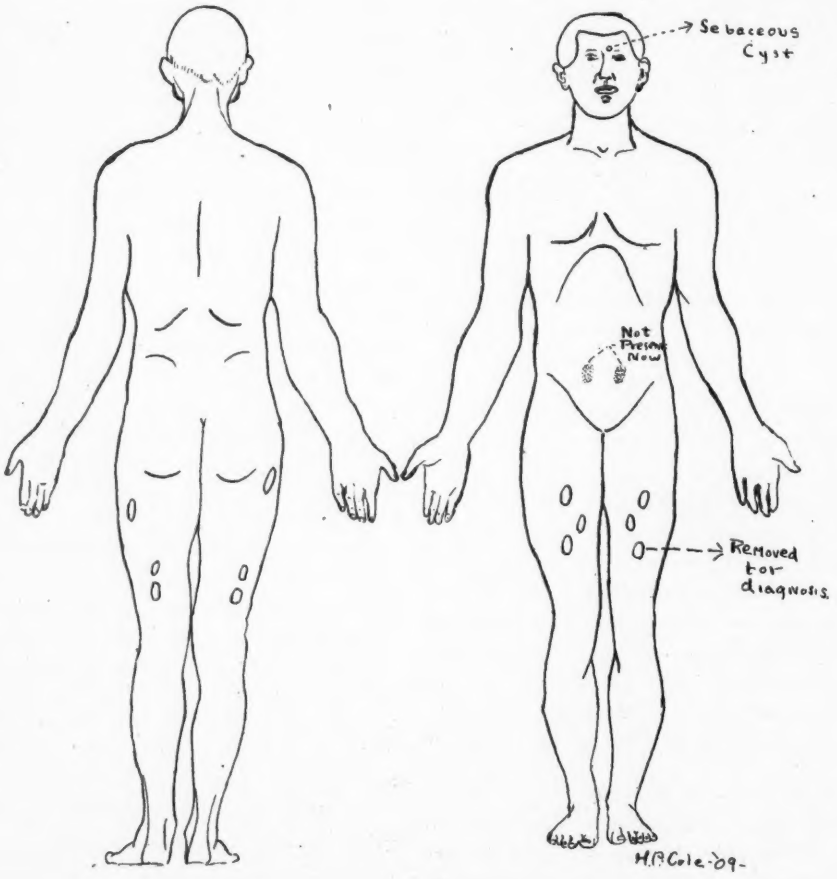
PATHOLOGICAL EXAMINATION—DIAGNOSIS.

One of the tumors was removed under cocaine anesthesia for purpose of diagnosis. The tissue consists of a lobulated mass 1x3x5 cm., and presents the typical gross and microscopal appearance of a lipoma.

DIAGNOSIS.

Multiple symmetrical lipomata.

202-204 Conti Street.



# MORBUS COXARIUS OR HIP-JOINT DISEASE

BY C. F. ANDERSON, M.D., NASHVILLE, TENN.

Tuberculus disease of the bones and joints was recognized as far back as the early part of the last century. Nelaton wrote a work called "Tubercular Disease of Bones," in 1837. Rokitansky and Virchow referred to tuberculosis in the bony system. Godlee, in 1877, described the tubercle in granulation tissue from white swelling of the knee-joint and thought it to be "very lowly organized form of granulation tissue," but he did not know it to be of the nature of the true tubercle until 1882, when Koch discovered the bacillus of tuberculosis and demonstrated its presence in the tubercle.

ETIOLOGY.

The essential cause of tuberculous disease in any tissue of the body is the bacillus of tuberculosis of Koch.

It is very interesting as well as instructive to study the gradual development of our knowledge of the cause of tuberculosis of the bones. In 1834 Laennec wrote on Diseases of the Chest, and called all caseous deposits in the tissues "Tubercles." Virchow a few years later showed that these tubercles were not all of the same origin.

Connheim, in 1880, more definitely defined "Tubercular." He said: "All is tubercular which by transferance to properly constituted animals is capable of inducing tuberculosis, and nothing is tubercular unless it has this capability." This seems to have made ready for the immortal Koch, who discovered the bacillus of tuberculosis in 1882. He defined tubercle as "Any growth of newly formed tissue which contains the bacillus of tuberculosis irrespectiev of situation, histological structure or distribution."

Koester, in 1869, was the first to study this bone disease histologically, and recognize its tuberculous nature. He examined the synovial membranes in several cases of white swelling of the joints, and found in all of them nodules the size and kind of miliary tubercle, having one or more giant cells in their center, lymphoid cells in their periphery.

There are certain *predisposing causes* of tuberculous bone disease. First, I will mention *Trauma.* Alexander Primrose, in the American Practice of Surgery, states that of 315 cases admitted to the hospital for "Sick Children," Toronto, 35.8 per cent gave a definite history of injury. Of course one cannot depend too much on the history obtained for the simple reason that most of these cases are in small children, and they are not capable often times of giving a reliable history.

The child may have had a fall or lick some weeks or months previous and have forgotten it, or it may be that the child received a slight injury while at play that did not produce any ill effects at the time. We therefore cannot directly connect the onset of the trouble with injury in all cases with certainty, but frequently the sequence of events is so very obvious that we must look upon trauma as a predisposing cause. For example, I recently saw a boy about 8 years of age, who came in with a typical limp and other symptoms and signs that made the diagnosis clear, that gave the following history: The father said, while out walking the Sunday previous he noticed the boy limping, and asked him the cause of it." The boy replied, "Don't you remember when I fell off my sled last winter and hurt my leg?" On further inquiry the boy said his hip hurt him at the time of the accident, and continued for about a week, then

*Read before the Middle Tennessee Medical Society, June, 1909.

it got well. This was about three months before his father first noticed the limp.

Most authorities call attention to the fact that slight injuries are more frequently followed by tuberculous bone disease than more severe ones. This has been demonstrated experimently:

Krouse inoculated animals with tubercle bacilli, then injured the joints, and succeeding in this way in producing localized joint-disease. He also found that if the bones of these same animals were fractured no disease developed, but the bones united without any trouble. No doubt most physicians can call to mind som tubercular patient who sustained a fracture in which union was prompt and perfect.

The influence of tuberculous disease in the body is another and very strong predisposing cause. This, like all good rules, works both ways, as viceral tuberculosis often follows tubercular arthritis. It is said to develop on the right side more often than the left, no doubt because of its more frequent exposure to trauma, and it is likewise more frequently seen in the male.

*Age.*—It is almost essentially a disease of childhood. Most cases are seen before the aeg of 10, although it may occur in the adult and even in rare instances in adolescence. Bryant claims that 62 per cent of the cases arise before the age of 10 and 80 per cent beofre the age of 20.

*Heredity* plays a very important role. I think all agree that it is not directly transmitted, but certainly the tendency or predisposition is.

Of the 315 cases quoted from, 41.5 per cent gave history of tuberculosis in the family tree and 23 per cent of *these* had tubercular parents. It may be further mentioned (to illustrate another cause) that 50 per cent of all these were in children *delicate* from babyhood.

I think one of the most potent predisposing causes is the habit of living, the unhygienic surroundings that so many of these children are brought up in. Dr. Charlton Wallace, of New York, studied the hygienic condition of 443 cases, and gave his results and conclusion as follows (in abstract in the American Journal of Orthopedic Surgery, January, 1908): "That inherited tendency and overcrowding are not the most potent factors, although they play their part. First and primarily stand low standard of living, and shoulder to shoulder with it ignorance and neglect, both public and private, in permitting such an unwarranted per cent of preventable exposures; and of great importance is the lack of fresh air in the living quarters of the tenement class of patients."

PATHOLOGY.

The disease may be osteal or synovial in its origin. The tubercle bacilllus is deposited in the majority of cases in the femoral epiphysis, or in the head of the femur under the articular cartilage; it may be, however, in the acetabulum o rthe synovial membrane of the joint. In rare instances it may begin in the trochanter major or the neck of the bone; in such cases it may never enter the joint proper.

It first begins as a tubercle or little node, or it may be multiple, these being poorly nourished soon break down and an inflammatory process surrounding each of these soon leads to the formation of granulation tissue. In places the osseus trabeculae are destroyed, which allows neighboring foci to merge together. The center of the tubercles thus grouped together necrose, while the bony trabeculae in the area entirely disappear, and thus an area of cancellous tissue becomes greatly altered and is replaced by masses of tissue in which one can distinguish caseation in the midst of a tubercular focus. Now around this area we find the inflamed bone, where the absorption of the trabeculae is going on, and where that tissue is being replaced by granulation tissue. Thus we have formed the ulceration of bone or caries.

If the disease progresses, eventually the surface of the bone is reached and invaded. It then spreads rapidly to the joint, the inflammatory process increases the amount of joint fluid, which becomes infected and appears as a carious pus that collects in the joint cavity.

Abscesses may form and open on the front of the thigh, or if the acetabulum is perforated they open in the pelvis, perineum, bladder or rectum. Sometimes a mass of cancellous tissue perishes and comes away as a sequestrum. The whole head of the bone may be separated from its neck and lie in the acetabulum as a sequestrum.

### SYMPTOMS.

It has been customary to divide this disease into three stages, ascribing to each certain definite symptoms. I shall not do this, as I believe with H. Augustus Wilson, "That tuberculous bone and joint disetse should be considered as the primary invasion or incipiency, and all other symptoms should be regarded as results and not necessary parts of the disease." The first symptoms to attract tention are *pain* and *limp*. The parents will notice the limp often—before the child complains. The pain is usually along the inner side of the knee, or it may be in both the hip and knee. The pain in the knee is referred from the seat of pathology along the obturator nerve to its wider distribution about the knee. The pain is *due* to muscular contraction, bringing the inflame dareas about the joint together.

These little children are noticed to have night terrors. Sometimes they will cry out in their sleep and not awaken; in others the pain will be more severe and keep them awake for varying lengths of time.

Direct local pain is not elicited early, only after abscess formation, and in the very acute cases.

*The limp* is the most important early sign, and is due in the beginning to the sensitiveness of the parts and an effort to protect this offending member. This is practically a constant system. It is true it is subject to more or less variation, and is even said to be intermittent, but in *most cases* some change from the normal gait is present to the careful observer. The child is noticed not to be so fond of its play; may go to play in the morning as usual, but soon tires and stops to rest.

The other symptoms of this disease are in reality physical signs, and are *stiffness or rigidity, distortion or attitude,* change of *contour* of the *hip* and *atrophy.*

*Stiffness* is probably the most important sign. It is ever present, being the first as well as the last. Nature here, as everywhere in the body, protects the inflamed joint and puts it at rest. This has been called nature's splint. Rest is the fundamental principle of the treatment of all inflammation. The degree of muscular rigidity is in direct proportion to the sensitiveness of the joint. This muscular spasm or nature's splint limits motion in all directions to a greater or less degree, which can be very easily determined by the peculiar elastic resistance met with when attempting to move the limb in any direction beyond the limit marked out by nature.

*Attitude.*—This is characteristic and is one of the earliest signs. In the majority of cases is flexion, abduction and outward rotation. Here again we see nature carrying out the rest cure. This is the position or attitude of rest in the normal condition, and it shows nature's instinct to protect the inflamed area, which is involuntarily and persistently carried out. The flexion breaks and thereby lessens the jar or impact transmitted from below. The abduction and external rotation throws the leg aside, so to speak, only using it as a prop instead of calling on it for active service. This very attitude makes the apparent lengthening so often alluded to, when in reality the pelvis is tilted downward in order to make the affected limbs parallel to its fellow. This can be proven by placing the anterior superior spines on a level. This compensation by the tilting of the pelvis for the deformity, twists

the lumbar spine laterally with the convexity towards the lower side. In the same manner the pelvis compensates for the flexion by tilting forward, and this in turn produces a lordosis of the lumbar spine. This can be shown by laying the patient on the table and noting that when the affected leg is flat on the table the lumbar spine is raised. We know that the lumbar spine and the popliteal space should both touch the table when patient is lying flat on the table (at least in children). As the diseases progresses and in some very acute cases, the attitude changes to that of *flexion, adduction adn internal rotation,* which gives us the apparent shortening. This is the attitude of the so-called natural cure, and is often seen in cases that have been allowed to go untreated, also in those where locomotion has been permitted too early. In this deformity the pelvis is tilted upward on the affected side and downward on the sound side, with the lumbar spine bent with the convexity towards the lower side.

There are some conditions in which we have *actual* shortening. This may be caused by:

1. Disuse of the member.
2. Effect of the disease upon the epiphysis of the head of the bone.
3. By the changes brought about by the disease that cause upward displacement of the femur, as erosion of the head, erosion of the acetabulum and depression of the neck.

Actual lengthening may occur, but is very slight, and is due to the pathology within the joint pushing the femur downward.

CHANGE IN THE CONTOUR OF THE HIP.

At first the changes in the contour are caused by the attitude (flexion, abduction and outward rotation). The buttox appears flattened and broadened, the gluteo-femoral fold is *lower* because of the tilting downwrad of the pelvis, and is *shallower* because of the flexion. If the thigh is adducted, the fold will be higher and shorter. On the anterior aspect the inguino-femoral fold is deepened and lengthened in the adducted position and less marked in the abducted or usual position. After the disease has progressed further and infiltration and swelling have occurred, these signs are more marked, especially the gluteo-femoral crease, or it may be entirely obliterated.

ATROPHY.

This is an important sign, as it is an index to the length of time the disease has existed, so if it is well marked the disease must have been present for some length of time, even though the parents say to the contrary. It is practically always present and can be demonstrated by measurement if not by the eye.

The cause of this atrophy has caused much discussion, bringing forth many theories which I shall not go into. Suffice it to say, it is probably due to *disuse* and *lack of nutrition*, the latter being caused by some reflex nervous interference.

GENERAL SYMPTOMS.

These patients not infrequently have the appearance of perfect health, but in the majority of cases you will fin da delicate child, one that has been so from babyhood. If the disease is allowed to progress and become painful it will cause a loss of sleep and appetite followed by loss of strength and weight, etc. There may be a slight rise of temperature, but often this is not present.

In cases with abscess formation which open and are allowed to take on mixed infection, one would expect the usual septic symptoms.

COMPLICATIONS.

Abscess is the most common one, being present in about one-half of the cases. Dr. Gibney says it is in about 20 per cent of cases in which treatment is early and appropriate. These abscesses usually result in sinuses that remain open often for a long time. The most frequent sites are on the upper and anterior aspect of the thigh, external to the femoral vessels, but may occur anywhere in the gluteal region. In cases where the acetabulum has been perforated they open in the pelvis above poupart's ligament, perineum, or into the

bladder or rectum. Meningitis is a rare and fatal complication. Infection of *any* of the other vicera may complicate the trouble.

DIAGNOSIS.

It is all important to make an *early* diagnosis, since the success of the treatment depends largely upon an early recognition, especially as to deformity and functional ability resulting. Unfortunately these cases are not brought to the surgeon often times as soon as would have given the best results.

I think if we bear in mind the characteristic symptoms, limp, pain, flattening of the buttox, obliteration of the illio-femoral crease, attitude, restricted motion, and atrophy, we will seldom fail in our diagnosis. Too often the failure lies in not making a thorough and systematic examination.

As a valuable adjunct we must not forget the X-ray in individual cases. It is of great value.

The tuberculin reaction is likewise a valuable aid in some cases, especially in the incipiency. After the formation of bone abscess, this often fails.

There is a long list of diseases and injuries that this affection must be differentiated from, but for lack of time I will pass on to the *prognosis.* This must be considered from two aspects, namely: The *mortality* and the *functional result obtained.* Hip-joint disease must *always* be considered a serious affection and the prognosis guarded.

The general condition of the patient, time of recognition, and the plan of treatment are the all important factors in the prognosis.

The formation of *abscesses* has an important bearing on the outcome. The rate of mortality has been variously estimated. Koenig places it as high as 40.3 per cent. In a series of cases in the "Hospital for the Ruptured and Cripple," it was 12.5 per cent. Cheyne gives it as 12 per cent.

In a remarkable series of cases reported by Bowlby (as abstracted in the British Medical Journal in January, 1908), treated by rest and extension, fresh air, good food, etc., the mortality was 4 per cent. *These* cases were treated in the Alexander Hospital of London. oFrmerly there was a rule in this hospital not to admit incurable cases, but since Bowlby has been connected no cases have been refused, as he does not believe any case incurable. The mortality in private practice should be very much lower than hospital practice, because of the class of patients gotten and better opportunity for out-door fresh air treatment.

The fatal terminations are: Exhaustion, development of the disease elsewhere, and septicamia and pyemia in abscess cases.

As to the functional result, if the cases come under observation early and the treatment is carried out by rest and immobilization, recovery should taek place with little if any restriction of movement and almost perfect functional result. If the disease has gone to destruction of the joint, we get ankylosis as a result.

Many degrees of deformity and functional disability may be noted between these results.

TREATMENT.

The treatment consists of both local and constitutional, and should be begun as early as possible in order to produce the best results:

The main indications for the *local* treatment are rest and extension. The two forms most practiced are *recumbency with extension* and the ambulatory treatment by means of *fixation or traction* splints.

Each of these methods has its followers and efficacy, and the surgeon is often called upon to decide which to use.

There are certain cases in which a combination of the two will meet the requirements best.

The prolonged recumbency with extension has the serious objection of interfering with the fresh air out-door treatment so essential in many if not all cases.

The extension is carried out by means of weights suspended very much after the fashion

of a Buck's extension dressing, care being taken to make the traction in the line of the long axis of the limb in its deformed position, which should be gradually changed to the normal, just enough weight should be used to control the muscular spasm. This plan of treatment may have to be kept up for many months.

After the disease has been arrested, an immobilizing dressing can be applied and the patient gotten up and out on crutches. The sole of the shoe on the sound foot should be built up enough to keep the affected limb from touching the floor. Many immobilizing and traction splints have been devised and used, such as the Thomas, Taylor, Davis, Wyeth and others. The principle involved in them all being fixation and traction. One of the best splints or dressings is plaster of paris extending from the base of the toes up to and including the pelvis. Abscess formation may interfere with the treatment by any of these methods.

I favor the ambulatory method when it can be used, and think this plaster encasement is about as good a devise a sany fr immobilizing the joint. It may be that recumbency with extension will have to be used a short time to control the muscular spasm and reduce the deformity before the plaster can be applied.

The length of time to continue the treatment with any of these methods is very difficult to decide, and a safe rule is to continue long after it seems not to be necessary rather than to remove your dressing too early. No definite time ca nbe given; it may take months or even years, so don't stop until all signs and symptoms are gone, then a light dressing of some sort should be used for awhile and the patient kept under observation.

Abscesses should be opened and drained, if sinuses result, dress them often and remember Beck's bismuth paste has been very successful in the treatment of these.

Operations are rarely made now except for the removal of sequestra, and amputation only as a life-saving measure.

CONSTITUTIONAL TREATMENT.

This is an important part of the treatment that is often sadly neglected. These patients should be instructed just as carefully about the way they should live as any other part of the treatment. Simply to tell them to get plenty of fresh air and good food is not enough. The surgeon should see that the hygienic surrounding is the very best available. Fresh air should be obtained both night and day. Sunshine should be had if possible with the fresh air .

Forced feeding is a thing the family cannot carry out without specific directions. Milk and eggs are the most nourishing and should be pushed to the point of tolerance. The best way to do this is to have the patient take either one or both at stated inervals.

Tuberculin theraphy has proven a very great adjunct in the hands of many surgeons, and I certainly think it should be given a trial in all of the cases seen early; in fact, in all cases where the temperature is below 100.

Bier's treatment should be taken advantage of. Theoretically it is of great advantage, but the anatomical location makes it practically impossible to compress the outgoing veins, however arterial hypermit can be produced by means of a hot air apparatus.

139 Eighth Avenue, North.

# TONSILECTOMIES

BY H. H. MARTIN, M.D., SAVANNAH, GA.

The time is past, I think, for any discussion as to the relative merits of complete and incomplete ablation of diseased tonsils. I have, therefore, limited this paper, as its title implies to the former.

The desiderata of complete ablation of diseased tonsils are: an effective illumination of the field of operation, a degree of separation of the tonsil from surrounding tissues that will render the gland pendent and the removal of every portion of the gland.

Its difficulties are too numerous to mention and render it at times an extremely troublesome and unsatisfactory operation. These difficulties, however, can in a great majority of cases be overcome by the application of improved methods, together with the recognition of this procedure as a major surgical operation and applying to it the rules governing major surgical operations elsewhere. I am much gratified to know that more members of our branch of the profession are taking this view every day and that the family physician is also beginning to recognize it as such.

In my opinion this operation should be performed in a hospital only and under general anaesthesia.

When we were doing tonsilotomies only we ourselves and the profession at large treated it too lightly even then and the operation at home or in the office was the rule.

I have not performed this operation outside a hospital nor without general anaesthesia for more than two years, and I do not intend to do so again if it can be avoided.

In the choice of an anesthetic there is but one thing to be considered, safety. I do not believe that we are ever justified in sacrificing one jot of safety for any other consideration. It is quite true that one anaesthetic will cause the throat to be filled with mucous and another will not, and that with one the operator suffers little or no inconvenience, while with the other he suffers some annoyance. These are to be considered only in so far as they increase or lessen the danger to the patient.

My preference is for ether as I consider it free from danger, effective, and in the hands of a skillful anaesthetist only a little more troublesome than chloroform; the latter I consider extremely dangerous in all throat and nose operations.

There are many who take the opposite view, and I repeat, therefore, choose your anaesthetic with only one object in view, safety.

Illumination of the field is best obtained by a head lamp of some description and there are many to choose from. My preference is for Pynchon's; it requires no current controller, can be attached to an ordinary light socket, furnishes sufficient light, and does not get sufficiently hot to cause annoyance to the operator.

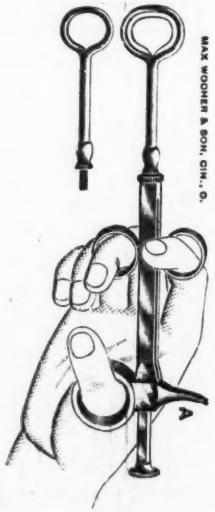
The separation and removal of the tonsils should constitute two separate and distinct steps in the operation and the first should be completed on both sides (if both tonsils are to be removed) before the second is begun. The relative positions of the surgeons, the assistants, and the patient, during the operation are of the first importance and are deserving of careful consideration as is any detail of the operation that will add to or detract from its satisfactory performance. Some men prefer to work at the head of the table, with the assistants standing at the sides, while others, and they are in the majority, I believe, prefer

to reverse these positions. All agree, however, as to the position of the patient's head, namely, that it should be lowered sufficiently to bring the pharynx into a plane lower than that of the larynx; therefore if the operator choose to work at the head of the table he will, of necessity, have to sit with the patient's head almost in his lap, in which case the tongue will be controlled and the breathing regulated entirely by an assistant, thus allowing the operator the unrestricted use of both hands, a very desirable and helpful arrangement. This position is prefered by many operators of wide experience, among them the Mayos, but it requires an especially trained assistant.

I have seldom found an assistant other than a well-trained laryngologist who could control the tongue, regulate the breathing, etc., to my satisfaction. I therefore prefer the standing position at the side of the table with the anaesthetist (my only assistant) at the head, sitting.

In this position the operator controls the tongue, regulates the breathing and requires the assistant to handle the anaesthetic and the gag through the entire proceeding and the forceps during the last stage of the operation only.

From the many and various methods for the separation and removal of the tonsils, which have been brought forward and advocated in the last five years, the operator should select that one which combines simplicity of technique with completeness and a minimum of traumatism. The Mayos, who do everything superlatively well, advocate and practice a method very simple, and in their hands very effective I am told; that is, the simple cutting off of what portion of the tonsil may engage in the tonsilotome without preliminary separation, and then with the finger wrapped in gauze rubbing or scouring out the remaining portion of the gland. In other words, they perform the old operation of simple tonsilotomy supplemented by the above mentioned rubbing or scouring. I have never seen the Mayos perform this operation myself, and, curiously enough, I do not recall ever having heard or read of it in laryngological circles; it was brought to my attention by several surgeons who had visited Rochester, and I tried it in a number of cases, the majority of which were most dismal failures. I have, therefore, abandoned it in my practice. The earlier attempts at total extipation of the tonsil consisted mainly of two methods, dissecting out with knife or scissors aided by seizing forceps and enucleation with the finger, and preceded the operation of tonsilotomy. The knife, I believe, has been practically abandoned in this operation, but many operators of wide experience are still using specially devised scissors, with which both separation and excision are accomplished in one continuous pro-




cedure. This method is so well known and has been so many times described that I will not take up your time with a description of its technique; the principal objections to it are that it takes considerable time in its performance owing to the constant obscuring of the field with blood, requires a variety of specially constructed instruments and a well-trained assistant. Enucleation with the finger I have done a number of times by simply continuing the separation stage of the operation when the

tonsil was found to be extraordinarily fibrous, so hard in fact that the finger could not crush it. This method is an ideal one under these conditions, but is impracticable in the large majority of cases. It should, however, always be attempted if the tonsil prove sufficiently tough. More recent methods are the electro-cautery snare and electro-cautery dissection. Of these methods I have had little experience, as they do not appeal to me at all.

With the various tonsilotomes and their limitations you are all familiar, as they have for years formed a large part of our armamentarium. But the tonsil snare (the cold snare) has come into prominence comparatively recently and will, I believe, eventually supersede all other instruments for extirpation of the tonsil. I have been experimenting with it in various forms for several years (not to the exclusion of the tonsilotome by any means, for that instrument, used in connection with seizing forceps after thorough separation from the surrounding tissue, is an eminently satisfactory one) and am convinced that the snare has three distinct advantages over the tome when they are used in the manner hereinafter described, namely, there is less bleeding at the time of the operation, less tendency to post-operative hemorrhage, and the wire loop will always cut cleanly through, while the tome, if dull or worn, may mangle the gland.

During the past five years I have wandered through a perfect maze of snares, seizing forceps, separators, etc., having tried all I have seen or heard of, and by a process of eliminating and modification, have reduced my armamentarium to Mathieus tonsilotome (size 1 to 3), a modification of Kratzumeller's snare with Vedder tips, Richards' seizing forceps and Roberts' punch, the three latter of which I take pleasure in showing you, as they are quite new. The snare, as you will observe, is so strongly built that it can be used in exactly the same manner and with the same degree of lateral pressure as the Mathieus tonsilotome, has a very broad thumb ring to prevent injury to the thumb, and an extra thumb hold in case both hands are required in the ecrasement. It is so simple in its construction that it can easily be taken apart for cleaning.

The forceps are the best I have seen, as they combine a firm tenacious grip with a shaft over which the ring of the snare or tome can be passed after the tonsil has been seized. A distinct advantage.

The technique of the operation is the same, whether the snare or the tome is employed. The patient is thoroughly anaesthetized with ether and placed on the table with the head at right angle to the shoulder, the face being turned slightly towards the operator, who stands at one side; the anaesthetist, who is the only assistant required, being seated at the head of the table. The tongue depresser is held in one hand, and under full illumination, both tonsils are freed with the forefinger of the other hand until they are pendent and the finger can be passd freely around the top, the bottom and either side.

At this stage enucleation with the finger is effected if the tonsil is found sufficiently firm for its accomplishments, but the attempt should at once cease if the pendent gland crushes under pressure instead of rolling and turning about under the finger. It will be necessary at this time to again aneasthetize the patient before removing the glands, which can be accomplished without any change of position if desired. The separation will have occasioned some bleeding, but by the time the patient is ready for the completion of the operation, this will have entirely ceased, and the tonsils can be plainly seen as two dark purplish pendent bodies; the one nearest the operator is seized first, taking a deep hold at top and bottom with the Richard forceps, the ring of the snare or tome (whichever is used) passed over the forceps and the latter entrusted to the assistant, who is directed to make sufficient traction to lift the gland from its bed, while the operator, with the tongue depressor in one hand and the snare or tome in the other, completes the operation; if with the latter quickly, if with the former slowly, in order

to firmly compress all the tissues before severing them. It will often be necessary in completing the ecrasement with the snare to bring both hands into play. This can be easily done, as an extra thumbhold is provided on the instrument, and with the tonsil in the grasp of the forceps and engaged at its base by the wire, the tongue depressor can be temporarily laid aside. The operation will, of course, be facilitated by having at hand two of the instruments. This method applies only to tonsils which have not been tampered with, and which have sufficient substance and form to be rendered pendent bodies. In those cases where a removal has been attempted or simple tonsilotomy has been performed, or where for any reason there remains only flat, ragged glandular tissue, one of the various tonsil punches will be required, of which I think Roberts' is the best. In my practice tonsilectomies have had so few sequelae that they are hardly worth mentioning.

In two cases there were peritonsilar abscess coming on at once, discharging through an incision on the second day after operation. In two there was post-operative hemorrhage on the seventh and eighth day respectively, both of which were controlled only after a gauze compress had been placed in the tonsilar cavity and the pillars sutured over.

There were two other hemorrhages which were continuous from the time of operation for several hours, but were controlled by persulphate of iron applied directly on the bleeding point, with cotton rolled on an applicater moistened and dipped in the powder. For the control of hemorrhage these two proceedings have been the most satisfactory in my hands.

# THE SPONTANEOUS OCCURENCE OF CARDIO-VASCULAR DISEASES IN THE DOG

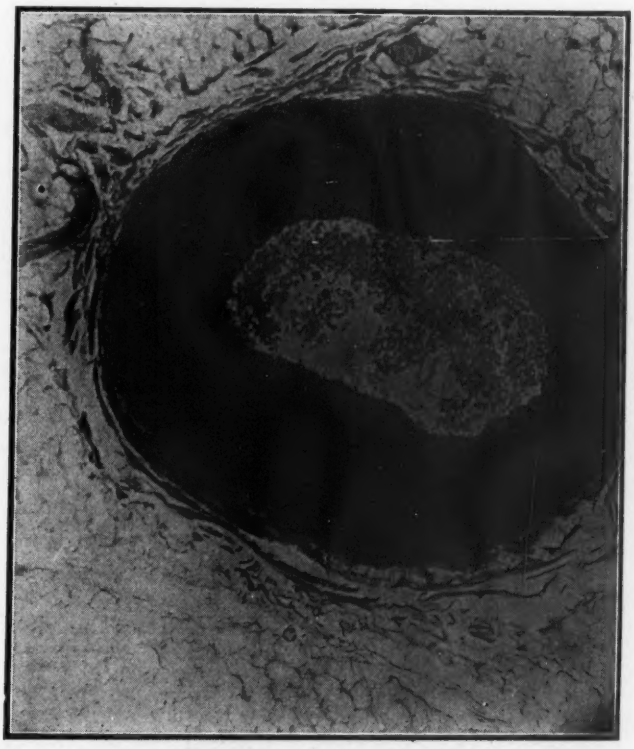
BY WM. deB. MACNIDER, M.D.,

Professor of Pharmacology in the University of North Carolina.

(From the Laboratory of Pharmacology.)

The following article should be considered as a laboratory note and not as a scientific investigation. In reviewing the literature on the subject, one is struck by the fact that there are so few reports of morbid changes occurring spontaneously in the lower animals. They do, of course, necessarily occur, and reports of their character should be of some value to investigators who are working along the lines of experimental pathology and pharmacology.

The material which forms the basis of this report was obtained from three dogs which died unexpectedly during morphine-ether anesthesias. The first animal died at the commencement of the administration of ether.



**Transverse section of the anterior coronary artery, showing a localized thickening of the internal coat.**

Death was preceded by violent struggling on the part of the partially anesthetised dog. The heart was large and pale and covered, especially around the coronary vessels, by an abundance of fat. Sections of the heart muscle showed a late stage of fatty degeneration of the muscle cells and a pronounced fatty infiltration. The coronary vessels were small, tortuous, and evidently sclerotic. Sections of the anterior coronary artery showed numerous patches of thickening of the intima, some of which were beginning to degenerate into atheromatous ulcers.

The second animal succumbed soon after the commencement of an experiment, but before any operative or other procedures had been instituted to which the death could be ascribed. From the first observation the dog's blood pressure was unusually low and the heart slow and weak.

The post-morten showed an advanced fibroid heart with only slight changes in the coronary vessels and aorta. Sections from the heart showed a diffuse connective tissue overgrowth with atrophy of the muscle cells. In several areas the muscular element had been entirely replaced by connective tissue, which was thoroughly fibrous and contained only a few nuclei.

The third subject was an old dog; took ether poorly, and died suddenly during an experiment. Just prior to his death the heart's action, which was under observation, was good and the blood pressure was high. The post-mortem showed marked sclerosis of the mitral and aortic valves. The aortic valves, in addition to the diffuse thickening, presented several beads along their free margin. The aorta was diffusely sclerotic, the change being most evident in the middle coat and in the upper portion of the vessel.

# PSYCHIC PHENOMENA

BY J. Z. SEXTON, M.D., Siloam Springs, Ark.

The subject chosen for this paper may doubtless impress some members of this society as one entirely too comprehensive to be dealt with by other than a profound student of psychological effects, by one who has had large experience with men and affairs and a sufficiently trained mentality to give good reason for the hope that is in him.

Therefore, I feel it incumbent upon me at the outset of this effort to offer the society an apology for asking their indulgence in so weighty a field of thought. But before receiving my friend Doranti's card with attached invitation to prepare a paper, I had determined some time in the near future to read a paper before either the State, County or District Society on my chosen subject to-day, not because I felt that I could enlighten any of my fellow-society members on the principles of psychology nor that I had any new truths for them to ponder over, but was actuated solely by a desire to learn, not to minister, but to be ministered unto, and if in the reading of my paper here to-day, I can stir into expression the ideas (and I know they are here) of the members of this society along this line, I will feel that my effort has been worth while.

Dr. Weir Mitchell has said that no man can be a good physician who is not a good psycologist. It is psychology that shows clearly why psychotherapy works, why it has worked through all ages. We are all psychologists in degree. No man can long observe phenomena of the human mind without forming certain conclusions, which very conclusions may entitle him to be classed as among those possessing psychological peculiarities. I, myself, studied psychology while in college, but will say that except for some classifications and divisions of the mind, I have retained very little of what I learned at school, but the substance of my remarks here to-day have been correlated from my own experience and observations in ten years of practice of my profession. I dare say the inspiration of most all papers read before medical societies have been experience of the author, and I am here going to describe one of my own cases under the head of hypnotic influence, which I will briefly take up.

The scientific man who acknowledges himself to-day a disbeliever in hypnotic influence is confessing to an ignorance which has been inexcusable for the past thirty or forty years. Hypnotism, or, to the medical profession, psychic therapy, has had three periods.

In its ancient period it was unknown and yet was unconsciously the salvation of medicine. Without it the inane therapy of useless and usually harmful agents would have shelved medical research for centuries. In its medieval period or the period of beginning, scientific medicine, its entity was only faintly recognized, yet it continued to act as the conservator of treatment. In modern medicine, it has been isolated, analyzed, applied, but its scientific administration is not yet, but is a reservation for the final period of its evolution; until then Mrs. Eddy will keep her halo. Proof of the power of thought to produce physical results is common, how long have we heard of the fear that turned a man's hair white in a night. Every doctor knows that intense anger has so effected the mother's milk as to seriously disturb the proper digestion of it by the infant. And the United States government, a while ago in a series of experiments, demonstrated that certain emotions produced corresponding derangement of certain organs. If there is in the mind then this very evident power to create adverse physical conditions, may it not also create favorable conditions? The processes of the body are all under th econtrol of the nervous system and the nervous system is a very real live structure of living tissue. It is through the nervous sys-

tem that life persists and illness is remedied, whether by means of mind or medicine or food. Digestion, assimilation, elimination of waste, tearing down and building up circulation and respiration, take care of themselves in health because we are not conscious of the active busy nerves. Now the emotions effect these processes. Fear parches the mouth, by arresting the flow of saliva, tightens the throat of the unsophisticated physician who assumes to address a scientific body on psychic phenomena. Grief destroys appetite by checking digestion, assimilation, the demand for food. Joy and pleasant associations quicken the appetite, give strength and firmness to heart beats. We blush or perspire under certain emotions. The heart hesitates or even fails under sudden shocks of grief or joy. Fright so effects the secretions as to produce a sudden movement of bowels. Worry, hate, fear, self-consciousness of the wrong sort are all mothers of unnumbered ills. In order that the thought cure may be effective, our diagnosis must be correct. We do not give a thirsty boy dry bread, nor do we prune our potato vines as we do the grape vines and just so great the difference between the treatment demanded. The remedy according to the case may be surgery, antiseptics, internal medicine, diet, rest, exercises of mind and body or mental suggestion.

I hope I have made my reasons clear for speaking to those who are interested in the influence of the mind over disease and health. Mind cure, like medicine cure, has its limits. To keep that fact in mind will keep a good thing from discredit and not deprive us of its benefits. If any cure whatever is wrought by suggestion—mark this—it is not by belief that the illness was imaginary, it is because thought, belief, resolution, expectation, good cheer, so long as our conscious life dwells in the body, send from the brain currents of force that play along those tangible nerves, but no mental influence will do what is not provided for in this nervous system and its laws. To do more is as much out of the power of mental suggestion as to put out a fire or heal the broken limb of a tree.

Hypnotism, psychologically speaking, has been classified as a dissolution of the objective and subjective minds, with the suggestion or assuming the functions of either, at his will, but the fallacy of its being the exercise of a superior will power over a weaker one has long been dissipated in the fact that it takes a reasonably strong mentality to receive suggestions under hypnotic influence. It used to be called mesmerism, after one Mesmer, a Frenchman, who having a strong dominating personality, with the tact of compelling people to do his will and being a queck practitioner of medicine, together with Father Hell, a French priest, founr he was able to relieve a number of his neuresthenic patients by suggestion going through considerable mystifying movements with them, but both he and Father Hell (who was the one who brought the religious element into it, as seems to be so necessary to inspire confidence in all movements even to the present day) were superstitious enough to believe that powers were derived from a magnet Mesmer carried, also, it being in the days of astrology, the planets were supposed to exercise their influence in his behalf. Mesmer's results were such that the French government appointed a commission to investigate his methods, but they reported exactly what he told them about the loadstone and planets. He afterwards discarded the loadstone, as he lost it for a while, and found it did not detract any from his powers, but it remained for a German named Loeb to classify after scientifically studying the phenomena of Mesmer and placed it on a scientific basis, renamed hypnotism.

The hypnotic phenomena which came under my observation and care were that of a woman aged 59 years. She was the mother of eight or nine children, and always had lived in peaceful harmony with her husband and children. The family was in very moderate

circumstances, but she was possessed of some education. Her husband was a kind of a local Christian preacher, with a great many hobbies, which he took up very easily. About four years ago he sent for some books he saw advertised on hypnotism and after reading and discussing them for some time told his wife he believed he was possessed of hypnotic powers and was going to experiment on her and the family. She consented, and proved to be a very susceptible subject to his chicanery, the rest of the family not paying much attention to his efforts. After repeatedly putting the spells on her as she described it to me, she conceived the idea that he was striving to get rid of her so as to get another wife. Now this may have been a case of delusional insanity or pathological instead of psychological, but she was under my observation for so long and I could find no other indications that I believed it purely psychological. In fact her mental faculties in every way that I could test them seemed to be above the average for one of her station of life. She believd so fully in her husband's power and his intentions toward her that she finally left him and several children and came to me with her troubles. I tried to disabuse her mind, also her husband, when he found what he had done, made promises to her, and really thought lots of her. So acting under my advice, she returned to him, but in a week or two developed a neurasthenic condition. I went to see her, at which time her husband with tears in his eyes told her he had nothing to do with it. Her tongue would become coated with a grayish coat, her breath offensive, pain in epigastric region, headache, quickened pulse and numerous other marked symptoms. She again left her husband and coming to town, placed herself under my care. I realized a peculiar case, and tried some psychistry on her with almost instantaneous and marked success. My methods were entirely suggestive, and while I do not lay any claim to possession of qualifications for a good suggestive therapuetician, and, as a whole, only believe it when scientifically applied, robbed of all the mystifying fakisms, with which it is usually associated, yet I am sure of my results in this case. She rented a house in town and finally her children came to her and she lived in perfect health and contentment, although it seemed to distress her that she could not live with her husband. Her husband, after a few months, paid her a visit, and acting under my advice, she again endeavored to stay with him, occupying separate beds, but in two or three days she was back in the same condition. This was repeated a great number of times, always with the same results. This seems to be a case of hypnotism vs. hypnotism, but it being my only experience along this line, I deemed it worthy of mention to strengthen my contention that there is great good to be derived from suggestive therapeutics.

Since the majority of our cases of neurasthenic states cannot be assigned to any definite cause, but are the manifestations of a diseased condition whose seat and nature are merely speculative, being probably partly of psychical and partly of physical origin, with no known pathology other than the indefinite pathology of cells undergoing fatigue. I think if the confidence of the patient can be obtained, psychotherapy is indicated, and more than any other remedy possesses the power to subdue the nervous suffering, at least it is worth the effort, and I consider it wholly in line with our sane, practical methods of applying allopathic principles. We have sat idly by and allowed a clever New England woman to reap a rich harvest financially, and obtain a following unprecedented for a woman, solely by applying to the frailties of mankind principles of healing which were known and applied, though as I stated before, unconsciously by Galen and Hypocrates, the fathers of our profession. Mrs. Eddy, of course, is woefully, unscientific, she has nought of the truth, and very probably herself does not realize the underlying principles of her success,

which has caused her name and book to be known in almost every civilized country on the globe. But she struck a popular chord which found a ready response in the human heart, when she surrounded the art of healing with a sacred cloak, her contention that all is mind and no matter, that the beautiful music we hear, the trees that we see in their gorgeous costume with which spring adorns them, the beautiful streams that leap from the mountain home to wind in silence through flowery vales, have no place in our economy, but are mere matters of the mind, we know to be a fallacy. As you think, so you are, is her motto. We are willing to admit with Mrs. Eddy that thought is a dynamic force, but to be applied to control material conditions must be robbed of the assumed divine inspiration and scientifically applied to human needs.

There is no denying the fact that the Emmanuel movement recently started from Emmanuel Church, in Boston, is fraught with great good. It is a scientific move in the right direction, and originating as it does in the birthplace of Christian Science and from such an intellectual center as Boston, where multitudes are following in the wake of that false prophetess, will do more to stamp Mrs. Eddy's cult out of existence than the combined forces of truth-seeking scientific bodies the world over, if that were the only excuse for its existence it would be reason enough, but it is more than that, it is showing to the world that Mrs. Eddy and her disciples have no monopoly on mental therapy, but that what little real good does come from her teachings (and it is more than ever balanced by the harm she does) have been known to science for ages past, and that scientific men are better qualified to apply these principals of healing. The movement would not receive much credence from the medical world were it not endorsed and activly participated in by the leading physicians of Boston, which include some of the foremost practitioners of the world. The great difference between this movement and Christian Science, leaving out of the question Mrs. Eddy's false teaching about mind and matter, is this—Mrs. Eddy claims thought to be so powerful as to cure a broken arm or heal a gangrenous limb, it has no limit in her theory, and diagnosis is not considered. We know that all good resultant from the practice of our art, depends upon a correct diagnosis and proper treatment of the same. Now the physicians of Boston who have associated themselves with the thought-cure movement, are eminently qualified and do make a correct diagnosis of all cases. Those amenable to treatment by mental suggestion are given that treatment by themselves or turned over to some lay worker in the movement who is just as competent if he or she has the confidence of the patient to administer the treatment as the physician himself. Beyond this, the ministers of Boston who instituted the plan do not attempt to go.

"So far as I know and I have taken pains to find out, there is no such thing as cure of organic disease by mental influence," said Dr. Robert C. Cabot, in an address at Boston, "but in the treatment of all functional disorders which form two-fifths of all diseases, mental agencies are of great importance. I do not believe tuberculosis has ever been cured by mental means, but I have in mind tuberculosis patients who would get well if their worries could be removed."

I hope I have cleared the way for speaking to those who are interested in the influence of the mind upon matters of health and disease, the subject is in the air and the magazines, and treating this voluminous subject so briefly as I have, I have had in mind several kinds of people, but particularly those who believe in getting at the root of a matter and not believing that one key unlocks all doors.

# EDITORIAL

## TUBERCULIN TESTS IN THE EARLY DIAGNOSIS OF TUBERCULOSIS.

In recent years the laboratory has given to the world some very valuable and life-saving methods as well as perfected diagnoses in many diseases.

In no disease is an early diagnosis so necessary as that of tuberculosis, it being a well known fact that insidious cases located in the liver and other abdominal viscera are very difficult of diagnosis in their incipiency, as well as many cases of pulmonary tuberculosis where centrally located and of minute area involvement. Physical signs may be practically absent and the symptoms so illy developed as to make it impossible to be certain that the disease has gained a foothold in the lung. It is here that these tests are invaluable because of their practical certainty, and the fact that it is in this stage that the best results can be obtained from the proper treatment.

While installation of the tuberculin in the eye and the consequent conjunctival reaction is one of the most certain methods, yet, in view of the fact that the superficial skin test is suitable and accurate in most cases and is without the danger of destruction or inflammation which sometimes follows conjunctival tests, would to the mind of the author make it the practical test to be used by practitioners of medicine preferably. In two cases I have seen destructive ulceration of the cornea following the conjunctival test leaeving permanent corneal scars, which of necessity seriously impairs the vision. This danger should always be avoided and the superficial skin test given the preference, always bearing in mind that the reaction to be of positive value should be distinct and well developed within the first 24 hours. If this is borne in mind and the use of this method popularized we have added to our diagnostic knowledge a laboratory method of incalculable value. The test by inoculation while certain in its results is not necessary if care in the use of the superficial application is observed. While I would not think of permitting any laboratory method to take precedent over clinical symptoms and physical signs, yet the internist should avail himself of these laboratory findings in every case where doubt exists or incipient development is suspected. In fact, with this great aid at his command, together with the improved methods of diagnoses this fell destroyer to mankind can be recognized sufficiently early to get the best results from the treatment.

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## MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The thirty-fifth annual meeting of this association will convene in St. Louis on Oct. 12 for three days. As is well known, this is the largest independent association of medical men in this country, and the type of papers presented has always been of a high class, divided as it is into two general sections, namely Medicine and Surgery, has popularized these meetings for the last thirty-five years. Composed of a membership of doctors living in that broad territory from the Lakes to the Gulf and from the Alleghenies on the East to the Rocky Mountains of the West, thus associating together doctors with especially large experience in the disease of the Mississippi Valley, would of necessity be of great interest to the doctors of the South, because the programme invariably is full of practical and scientific work upon diseases with which they have to contend.

As the railroads have universally given a rate of one-and-one-third fare, the editor-in chief of this journal, as President of that association, takes this opportunity to issue a cordial invitation to all doctors interested in scientific work. The selection of St. Louis is especially happy because of its central loca-

tion and its peculiar fitness for the entertainment of large bodies. Especially is this true because of her many first-class hotels and her experience gained by her recent exposition entertaining.

Any reputable physician or surgeon living in the above territory desiring to present a paper can do so by notifying the Secretary, Dr. Henry B. Tulley, of Louisville, Ky.

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## PELLAGRA.

While pellagra is an old disease, having existed for many hundred years, it is comparatively new in this country, appearing first in the southeastern portion of the United States, especially in Georgia, Florida and South Carolina, it has spread with wonderful rapidity over a large area especially in the South.

It has long been considered a disease among the poor and poverty stricken, and the first cases noted were among this class, but recent developments has demonstrated the fact that no class is immune who use bread stuffs made of Indian corn. While many cases occurring as they have in institutions and spreading as in the Baptist Orphanage, of this city, where two cases occurred a few years ago for the first time, to be followed by at least 14 or 15 others, would naturally suggest the possibility of infection, yet a most careful observation has failed to show any reason to believe that it is produced other than through the medium of diseased corn. Of course, it is strange that this disease should so long have been absent from this section of the country where the people are principally corn bread eaters, and yet this can possibly be explained by the fact that only in the last few years has the South been receiving large shipments of corn from the Northwest, where it had been harvested too green, or having been shipped in crowded cars and from overheating, fermentation necessary for development of this dangerous character could have taken place. While many, especially the secular press, have been disposed to treat lightly the spread of this disease throughout the country, it has assumed proportions sufficiently grave to claim the best thought and attention of the medical men throughout this section. While it is established beyond a reasonable doubt that pellagra is caused from eating of not properly cured corn, the fungus or mold of which poisons the system, the disease presents many peculiarities, some of which are calculated to produce conflict of conclusions reached regarding it.

While the disease has prevailed in Italy and other southern European countries for centuries, and notwithstanding the fact that it has only recently occurred in the South, where for hundreds of years corn has been the essential bread element used, especially by the poorer classes, it is nevertheless true that something over 2,000 cases have been reported in the last few years, and no other possible explanation has been made from reliable sources.

In Mississippi it occurred first among Italian laborers, and was believed to have been imported by them into that section, but its appearance in other sections where no importation of foreign labor had taken place would make this source of the disease improbable.

The fact that the disease develops more easily in persons living on a corn diet, especially those improperly and insufficiently nourished, would bear out the old idea of its being produced by impure corn, but when it is considered that it has appeared among those well nourished and in a few cases reported who never ate corn, it has brought about conflicting statements and theories both among the laymen and the profession. So that the problem which confronts medical science is to harmonize these apparently conflicting manifestations and positively isolate the cause so that a proper and effectual remedy may be applied for its relief. State Boards of Health, together with the National Public Health and Ma-

rine Hospital Service are all giving it thought and making investigations looking toward a solution of this serious problem, and it would seem to have reached that stage of danger where a committee of scientific medical men should be appointed to take up the study of this disease as was done in the Yellow Fever Commission, which conferred such everlasting benefit to our race. This should be done not only from a standpoint of human health, but to forever settle the doubt which will necessarily be created in the minds of the people as to the healthfulness of one of the largest sources of wealth in our country. Science should see to it that the people are protected and that our corn crop should not receive the improbarum as did, some years ago, the American Polk product in Germany. This journal's pages are open to all investigators, especially in this disease, and papers upon this subject are invited.

## BOOKS

### BOOKS RECEIVED.

History of Yellow Fever, by George Augustin, of the Parish Medical Society of New Orleans, La. 1,194 pages. Price, $6.00. Published by Searcy & Pfaff, New Orleans, La.

Physical Diagnosis, by Richard C. Cabot, M.D., Assistant Professor of Medicine in Harvard University. Fourth edition, revised and enlarged, with five plates and 240 figures in the text. 579 pages. Price, $3.00. Wm. Wood & Co., Publishers, New York.

# ABSTRACTS OF CURRENT LITERATURE

## MEDICINE.

### THE COLON TUBE AND THE HIGH ENEMA.

The question of how far the soft rubber colon tube can be inserted into the bowel to administer an effective high injection, is taken up by H. W. Soper, St. Louis (Journal A. M. A., August 7), who describes experiments performed by him in which the position of the tube was verified by the X-ray. Sixty cases were examined where it was attempted to pass long blunt end soft rubber tubes, with side openings, into the rectum, the patient being in the knee chest and side positions. The only case in which he succeeded in passing the tube above the dome of the rectum was one of Hirschsprung's disease or congenital idiopathic dilatation and hypertrophy of the colon, and even here it was necessary to use the sigmoidoscope to introduce the tube. He thinks it is only in cases of abnormal development of the sigmoid that it is possible to introduce a soft rubber tube higher than six or seven inches in the rectum. A short tube six inches in length is therefore best for all sorts of enemata when using water for fecal evacuation, and it is possible, as he has frequently demonstrated, to thoroughly cleanse the entire colon by using a large caliber (one-half inch) short tube. It is also best when retention of liquid is desired.

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### TUBERCULOSIS OF THE LARYNX.

W. E. Casselberry, Chicago (Journal A. M. A., August 7), notes the common opinion of the formidable nature of laryngeal tuberculosis, and seeks to establish for this type of the disease, what is now well known in the pulmonary type, that in certain patients Nature develops an adequate resistance which, properly aided, may arrest the disease. In 24 out of 60 cases observed by him, the disease was of the hopeless non-resistant type. Twenty-two of the 60 patients had some elements of hopefulness in them, their natural resistance being sufficient to cause temporary amelioration and arrest, but not a permanent betterment, as a rule. Of this number, 8 are known to have succumbed in from 3 to 7 years and 12 more are evidently doomed to follow the same course. Two, however, if this second group have now almost, if not quite, reached a state of permanent arrest of the disease, and one of these is reported. The third group is composed of 11 patients in whom the laryngeal lesions are or were in a state of arrest after a lapse of periods varying from four to fourteen years. This does not mean that they are absolutely free from tuberculous disease, but that all progress in the laryngeal symptoms has ceased. Seven of these cases are detailed and two of them have been since reported on by another physician to the author. Several other cases are also reported in which death occurred from tuberculosis elsewhere, the laryngeal disease having practically ceased. The above cases show that the prognosis is not altogether bad and that, if the disease is early recognized and properly managed, we will have better results than heretofore. The treatment is described. Locally it consists in intralaryngeal surgical treatment by excision of circumscribed infiltrations and curettage of ulcerated areas. The use of galvanocautery deep punctures, local application of lactic acid and creosote or formalin. Casselberry does not advise external radical operation except under urgent conditions, but not in the presence of advanced pulmonary disease. Mentholated emollient spray is, within limits, a sedative to cough and pain, and suited for home use. Cocain and orthoform combined are effective also to some extent. Systemic treatment with tuberculin by the opsonic method has seemed to him helpful, and in the resistant types the three cardinal principles of open-air life, rest and forced feeding are more imperatively demanded than in ordinary tuberculosis. Rest to the voice is essential and business dictation and even social conversation must be interdicted. The advantages of climatic treatment must also not

be overlooked. Casselberry concludes with the statement that simple tuberculous hyperlasia has not infrequently undergone resolution, and even tuberculous ulcers have occasionally healed. Partial improvement of the patients' condition has also been observed, and the effects of treatment under observation enables us to differentiate the cases in which a hopeful resistance can be looked for. In like manner the non-resistant cases can be recognized and the patients guarded from privation and hardship of travel and useless surgical intervention.

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NITROUS OXID AND OXYGEN ANESTHESIA.

C. K. Teter, Cleveland, Ohio (Journal A. M. A., August 7), gives his experience with nitrous oxid and oxygen anesthesia. He first gives a sketch of the history of this method, crediting the first reported cases in which it was used to Dr. E. Andrews, of Chicago, who, however, did not use it to any great extent. It was studied by Paul Bert, but its extended use is more due to Dr. F. W. Hewitt, of London. Warming the gas improves its effects and safeguards best against postoperative bronchitis or pneumonia, besides requiring a much less volume of gas to produce the narcosis. The elimination takes place principally through the respiratory tract and a patient with good circulation will come out of the anesthesia very quickly. It has been advised against in brain surgery, but with the proper addition of oxygen he has never had any difficulty with it. If air is used instead of oxygen there is less asphyxia, but the anesthetic effect is diminished. He reports cases in which the effect on the brain was directly observed, showing, in his opinion, that the discoloration and dilatation were not due to the anesthetic but were purely asphyxial manifestations. The asphyxia, moreover, is not dangerous as compared with that from ether or chloroform. Several cases are reported, also, illustrating points of special interest, such as strength of narcosis, the effects of age of patient, physical condition, primary shock, etc. He has kept a patient under the anesthetic for several hours, and considers it safer in this respect than any other of the general anesthetics, without exception. The aged as a rule are good subjects, but in children it is best to watch the symptoms closely, as the effects are very rapid. It is not always best to continue with nitrous oxid and oxygen under all circumstances, for, in some cases, it may be impossible to retain the desired depth of anesthesia. In some cases it may be better to change to a more stimulating or tolerable anesthetic, either in combination or sequence. He has had a few cases showing shock, probably more than would be noticed with other agents, owing to the fact that the nitrous oxid was selected on account of abnormal conditions present. He has had but one fatality which he reports, and that was due to shock and primary cardiac failure. He emphasizes the importance of continuous auscultation and describes his method of performing it during an operation with an improved Kehler stethoscope, which is especially adapted for the purpose. One of the main objections to nitrous oxid is the rigidity encountered in about 10 per cent of cases, and his best results in meeting this difficulty were obtained with an injection of from ¼ to ⅛ grain of morhpin sulphate and from 1-100 to 1-150 grain of atropin, injected half an hour before the operation. He does not advise the use of morphin as a preliminary, however, to any one not experienced in this method of anesthesia. The apparatus and the technic for this operation are described, together with the variations required when operating on the mouth and throat. The dangers are enumerated in some detail. The principle one is asphyxia. But he believes that nitrous oxid can produce death without the asphyxial element coming into it at all. Ordinarily, the cyanosis is not so severe as to be very objectionable, the principal result being a postoperative headache. Another undesirable symptom is tetanic cramps in the

arms, hands, feet and legs, but in every case in which this was observed the patient's physical condition was either bad or he was of a neurasthenic temperament, or both. Blood pressure is slightly raised during nitrous-oxid anesthesia, and this point and other effects on the blood have been brought out by Hamburger and Ewing. Their experiments, the author thinks, prove that nitrous-oxid anesthesia does not reduce hemoglobin and thereby cause anemia; that it does not increase hemolysis, and that what apparent change it does produce is transient and of no clinical significanse, and that nitrous oxid causes no permanent effect of any significance from the standpoint of blood changes. The advantages are the freedom from nausea and vomiting, the better after-effects, and fewer complications retarding recovery.

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### ANESTHESIA AND ITS DANGERS.

D. C. Moriarta, Saratoga Springs, N. Y. (Journal A. M. A., September 4), says that he has reached the conclusion of many others, i. e., that the danger of anesthesia is largely due to the anesthetist. He does not mean by this that some anesthetics are not in themselves more dangerous than others, but rather that the average patient can more safely take one of the dangerous anesthetics given by a skillful man than one of the safest given by an indifferent practitioner. He asks what percentage of the practitioners have had clinical training or instruction in the administration of anesthetics. He has seen some of the most atrocious performances in this line in the last two years. The profession does not sufficiently realize its responsibility in this matter, and he maintains that there is no justification for serious complications following anesthesia unless we know that it was a competent man that administered it. We should raise the standard of the whole profession in this regard. There is a safe and proper technic and the anesthetist should know the action and peculiarities of the drug he uses and give his whole attention to watching his own proper duties during the whole time he is employed. He should be in no hurry, should determine for himself the condition of the lungs and heart, and if not previously informed, should ascertain the urinary condition. He should learn also whether there are loose teeth in the mouth and see if the patient is properly clothed. He should employ the method and the anesthetic with which he is thoroughly familiar and with which he can safely produce the lightest anesthesia under which the operation can be performed. Moriarta thinks that talking to the patient while getting him under the anesthetic is an advantage. He should never order the patient to take a deep breath, should have the necessary emergency remedies at hand and remain with the patient until he is safely in bed and in good hands. In conclusion he makes the recommendation that the Commission on Anesthesia of the American Medical Association should formulate special directions for the guidance of the general practitioner in anesthesia, concise but sufficiently in detail, giving him a method which he can adopt and feel sure that he is backed by good authority.

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### THE PARASITOLOGY OF SYPHILIS.

F. G. Harris, Chicago (Journal A. M A., September 4), describes the more notable attempts to establish the cause of syphilis down to the discovery of the spirochete by Schaudinn, in 1905, which has been confirmed by the general experience of the profession and has revolutionized our ideas of pathogenosis. It has been found, innumerable times, in all the lesions and stages of syphilis and its casual relation is now hardly disputed anywhere. Given an inoculation, the infection for a time is purely local, but after the period of incubation, the tissues react by the production of a local inflammatory area tending to necrosis, though resolution may occur. From the local focus the organisms are disseminated through the system by way of the lymph chan-

nels and the blood. The spirochetes locate themselves in the tissues, showing a predilection for the skin, glandular organs, etc., and, from the results obtained from the Wassermann reaction, it is evident that pathologic changes are more frequent in the internal organs than was formerly suspected. The organisms have a faculty for lying dormant for long periods, which accounts for many of the late sedentary manifestations. The question of immunity has taken on a new interest since the discovery of the spirochete. The experiments of Finger and Landsteiner and Neisser show that, strictly speaking, there is no immunity, the apparent immunity such as is expressed by Colle's and Profeta's law has been shown by the results of the Wassermann test to be due to a latent syphlitic infection. The demonstrations of the spirochete is one of the most reliable indications of syphilis in the primary stage, but Harris claims that the Wassermann test is more useful in the later stages. The greatest difficulty, in the application of the microscopic test for the organism has been the difficulty of its staining, but since the introduction of the Reichert dark-ground illuminator there is no valid reason for its non-use, and it is strange that it has not had a more universal application. He can explain this, Harris thinks, only by assuming that that physicians do not sufficiently recognize the necessity of an early diagnosis, permitting us to institute a logical treatment. Such treatment should consist in the removal or destruction of the affected area at the earliest possible moment and the immediate institution of energetic mercurial treatment. This, he says, should be more energetic and more individual than has been the custom. "In fact," he says, "I believe the control of the treatment, by means of the Wassermann test—the so-called biologic treatment—is a great advance in the therapeutics of syphilis."

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PELLAGRA.

E. J. Wood, Wilmington, N. C. (Journal A. M. A., July 24), after giving a history of the disease, says that pellagra has extended with great rapidity throughout the Southern States of this country, sixty-five cases having been recognized in his State, North Carolina. He reports a number of cases, personally observed for the most part, and says that the disease appeared in two forms. In one form we have a symmetrical erythema, especially of the exposed parts of the body, appearing usually in the spring associated with stomatitis, diarrhea, often some gastric disturbances, and followed by cord symptoms of various kinds, and finally by mental disturbances and cachexia. The patient usually gets better as the summer advances only to relapse the next spring. With each reappearance the nervous system is more and more affected. The average duration of these cases is five years, but may be much longer. The acute or fulminating variety is widely different, running a course of from three weeks to three months as a rule, and is invariably fatal. Over 50 per cent of the cases in the Southern States are of this kind. In Italy the disease is confined to the peasantry, but with us the disease affects all classes alike. He has seen several cases in one family, and the question has occurred to him whether it was contagious or not. The backs of the hands are invariably the first situations of the lesions, which are symmetrical and may be taken for a sunburn, as in one of his cases. The first nervous symptoms are usually paresthesias. Numbness and formication are often complained of and one of the most constant complaints is cold extremities. Vertigo is seldom lacking and mental hebetude is responsible for untidiness and other troublesome symptoms. Toward the close of the disease the patients become delirious. There may be other symptoms, contractures, epileptiform attacks, increase of reflexes or, less frequently, lessening of the same. Sometimes the skin lesions are said to be lacking, but Wood thinks that in many of these cases there is, or has been, a

slight erythema which has escaped notice. The pathologic changes are to be found in the cord, largely in the lateral and dorsal columns, with atrophy of cells in the anterior and posterior horns. The changes in the brain are inconspicuous. All the changes seem to be slow degenerative ones. Diet of corn or maize seems generally attributed as a cause. In studying his own cases, Wood was impressed with the fact that all the corn used by the patients came from Virginia and Ohio, where no cases of pellagra have been reported. While not accepting corn as the cause of the disease, he thinks that if there is any connection between them it must be that the active factor was developed after the shipping of the corn. Bacteriologic examinations have not thrown much light on the subject, at least not anything positively conclusive. Lombroso's pellagrosine has been said to produce pellagra in animals, but Wood thinks that the toxic symptoms produced are not sufficiently typical. One or two forms of bacilli have been found in corn and one of these has been found by Babes and Sion to produce symptoms resembling pellagra in animals. Tizzoni isolated an organism from the blood of pellagrous subjects which without question produced the disease in rabbits and guinea pigs. He also isolated the same organism in two samples of suspected corn. Wood has himself isolated from the blood of a patient an organism which he thinks is probably identical with this. The prognosis of pellagra in this country, so far, is grave, and the treatment is usually of no avail. Wood says there is reason to suspect that the epizootic meningitis of horses is due to the same cause as pellagra in man. If this is the case, we have some hope that serum therapy will help us. The blood of a healed pellagrone is said to be curative in experimentally inoculated guinea pigs. In chronic cases it is possible that the complete withdrawal of corn food and general tonic treatment may be curative. Atoxyl, which is much vaunted just now, has not been so successful in his hands as reported by European writers. The article is illustrated and accompanied by by a bibliography.

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MERCURIAL TREATMENT OF SYPHILIS.

Recognizing that mercury is the chief available remedy for syphilis, E. C. Hay, Hot Springs, Ark. (*Journal A. M. A.*, August 28), discusses the merits of each method of its administration, the internal, the inunction, and the injection methods respectively. Hhe ingestion method, or mercury administered by the mouth, is one of the oldest and the one that has been most in favor, but he is opposed to depending on this alone, as it is so feeble and slow in its action on the disease, disappointing and discouraging to the patient, irritating to the gums and the digestive tract when given in any adequate dose, and in any case uncertain in its action. He would depend on it only when the patient is free from all manifestations of the disease and it is only desired to keep him slightly under the influence of mercury as a matter of precaution when he is being allowed to rest in the intervals between the more active treatments. When giving mercury by the mouth he prefers a pill containing biniodid of mercury, arsenic and gold; it is non-irritating and has been productive of good results. Another favorite pill is metallic mercury combined with lanolin and purified ox gall, one-half grain each, which produces less gastrointestinal disturbance than any other he has used. The inunction method is also one of the oldest methods. It is not painful and is free from danger and is quick and potent in its action, but it is often objected to by patients because it is apparently dirty and sometimes irritating to the skin. It is, therefore, often left to institutional treatment or treatment at resorts with thermal springs, etc. At Aix la Chapelle the mercury cycle is used; that is, the mercury is rubbed on different portions of the body successively, while at Hot Springs it is confined to the back, hips and sometimes outer

surfaces of the thigh with just as good results, besides being cleaner and pleasanter. The injection method he thinks has really no advantage over the inunction at least when the soluble preparations are used. The insoluble preparations are the most potent drugs we have when given this way, but it is admitted by the majority of writers that their use is very painful, besides being the most dangerous. He believes in the combination of all three methods, and the important points which he wishes to emphasize are given as follows: "When first instituting treatment after infection, either inunctions or injections should be employed, followed by internal medication instead of treatment with pills first, followed by more heroic methods, as advised by most of the leading writers. The inunctions, from my experience and observation, on an average, are superior to the soluble injections, and more lasting in their effects. The insoluble salts are too intense and profound to be employed in routine, and should be held in reserve for rebellious cases in which rapid and pronounced mercurization is desired. Finally, the long course of treatment I have advised should be pursued in all cases. The six cardinal points in the therapeutics of syphilis are to keep a close observation of the weight, kidneys, bowels, stomach, gums and nervous system, especially the latter, as some patients will never manifest any evidence of mercury in the form of stomatitis, and the first evidence you have is a profound and acute nervous prostration." The prolonged course of treatment mentioned covers five years in which the periods of treatment, mainly by inunctions or injections, alternated by periods of rest, are gradually reduced from eight months in the first to four or six weeks in the fifth year.

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STAPHYLOCOCCUS INOCULATION.

H. R. Varney, Detroit (*Journal A. M. A.*, August 28), reports on experiments with polyvalent staphylococcus serums in cases of staphylococcus infection, which he has found to be efficient, especially in multiple furunculosis and carbuncle. Rarely has a new lesion developed after the first inoculation. His conclusions are substantially as follows: Polyvalent staphylococcus stock suspensions given in appropriate doses have a decided value in certain localized rebellious infections of the skin. Their administration is practically safe, causing prompt cessation of the active infection and immunizing the patient against its recurrence for a more or less prolonged period. Clinical observations serve as guides as to the time for reinoculation and simplify the difficulties met with in opsonic methods. The appropriate standard for size and frequency of doses have been previously established from opsonic estimations on laboratory patients with light infection. Failure to immunize the patient artificially may be due to an abnormal condition of the skin, non-specific bacterial suspension, or incorrect dosage. Much time is saved in the use of these stock suspensions by the elimination of opsonic indices and by the assistance derived from other therapeutic measures. Less suffering, less deformity, less danger of systemic infection, and less liability to recurrence are the advantages from the use of bacterial suspension as a therapeutic agent.

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ACUTE PELLAGRA.

N. P. Walker, Milledgeville, Georgia (*Journal A. M. A.*, July 31), reports a summary of the observations on fifty-one cases of pellagra occurring among the colored female insane patients at the Georgia State Sanitarium previous to January 1, 1909. He does not report any conclusive facts proving the disease due to corn diet, and in some cases this seems improbable unless the toxins are retained for long periods of time before their effects appear. In the majority of instances, dermatitis, stomatitis and diarrhea were noticed simultaneously among the first symptoms. Vomiting is occasionally an early symptom and slight rise of temperature and indefinite abdominal pains may be complained of. The

dermatitis is almost always symmetrical and, in some cases, contrary to some recent writers, it may occur on the palms of the hands or the plantar surfaces of the feet. The stomatitis also varies in extent and severity and vaginitis occurred in about 12 per cent of the cases. Diarrhea was present in all cases at some time or other and was absent in the beginning in only two or three. In the later stages constipation may replace it. The nervous symptoms are not so constant as would appear from the description of the chronic forms. Many of the cases running an acute course do not show spinal cord symptoms at all. Just preceding death, marked delirium may supervene, and a general mental reduction is often present. The blood of one patient presented a typical picture of pernicious anemia, and some other cases presented points of interest. Hemoglobin varied from 65 to 95 per cent, and red cells from 2,500,000 to 5,292,000. Nucleated reds were found in three cases and may appear comparatively early in the disease, while the hemoglobin is still normal. Of the patients who developed the disease in the sanitarium a few have recovered from the pellagrous symptoms. These numbered 12, or 26 per cent.; 6 patients were removed before the termination of the disease; 28 of the remaining 45, or 62 per cent, died.

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ON THE RELATIONS OF THE STOMACH TO THE TOTAL WORK OF DIGESTION.

By Alonzo Englebert Taylor, University of Pennsylvania, *Medical Journal*, July, 1909.

Taylor systematically considers each component of the gastric secretion, its function, and the possibility of digestion being carried on without it.

There is no stomach ferment concerned in starch digestion. The salivary secretions contain such a ferment, and in the stomach possibly 10 to 20 per cent of the total starch is converted into sugar. The rest passes into the intestine unchanged. The portion converted into sugar is also paassed into the intestine, not being absorbed from the stomach. The salivary ferments are in all probability destroyed in the stomach, and the further digestion of the starches is completed in the intestine by appropriate secretions from the pancreas and intestinal mucosa. These secretions can digest in a day five or six times the required amount of sugar and starch. In other words, salivary digestion can be dispensed with without evil effects.

The saliva contains no ferment for fat digestion, and while the stomach does contain such a ferment, lipase, it cannot act in the presence of hydrochloric acid.

All the work of fat digestion is accomplished by ferments secreted by the pancreas and intestinal mucosa, aided through emulsification by bile.

As to the digestion of proteins, the coagulable is converted into non-coagulable. A small portion is split into the state of albumose or proteose, peptone appears occasionally in traces, usually not at all; of the peptides and amido acids, which constitute the bulk of proteid digestion none appear in the stomach. Protein acted on by pepsin is more easily digested by trypsin, and this is an important factor. A fair estimate is that normally not over one-fourth of protein digestion occurs in the stomach. No absorption of protein takes place in the stomach normally.

While it is valuable and desirable, the body can completely dispense with pepsin in the stomach, as trypsin alone can completely digest the proteids.

The coagulation of milk was thought to be a specific property of the stomach. It is now known that the pancreas secrete an active rennet which can perform this function. To sum up, the stomach performs one-fifth of carbohydrate digestion, one-fourth of protein digestion, no fat digestion, and there is no absorption from it.

The secretion of water and mucus are too very important functions of the stomach.

The mucus combines with one-fourth of the normal hydrochloric acid and assists in emulsification of the chyme.

The motor functions of the stomach are by far its most important ones, because these functions cannot be assumed by the intestine.

The stomach acts as a repository, passing small amounts to the intestine. After each quantity passes from the pylorus to the intestine the pylorus closes and does not open until the acidity of this portion is overcome and local distention of the duodenum relieved.

The teaching of Pawlow is that the presence of an acid reaction in the duodenum causes closure of the pylorus, and when this becomes alkaline, the pylorus opens again. This theory does not account for the closed pylorus when the stomach is at rest nor during the first hour after a meal, in both of which conditions there is an alkaline reaction in the duodenum. There must be other factors in the production of this mechanism. While the intestine is capable of compensation to a high degree, intestinal indigestion is apt to be produced. This is particularly true in cases of motor insufficiency of the stomach, which are usually associated with excessive bacterial processes. While it is going too far to say that the stomach can be dispensed with with impunity, it is true that a study of its functions will show that its secretory product is of less value than is generally assigne dto it, and that its motor function is its most important.

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SLEEP AND DIGESTION.

G. M. Niles, Atlanta, Ga. (*Journal A. M. A.*, June 26), discusses sleep and its relation to digestion. As to the actual influence of sleep on digestion, however, there is some conflict of opinion, and he endeavors to cover the subject in a manner helpful to those interested in practical dietetics. It is a well-known physiological fact that the elimination of carbon dioxid and absorption of oxygen are diminished during sleep, mainly because the muscles are less active. Tigerstedt places the ratio of metabolism between the sleeping and waking states as 100 to 145, but asserts it to be dependent on cessation of voluntary movements; "for it may reach just as low a level in the waking condition, if the muscles be completely relaxed and every voluntary motion suppressed." While other secretions are diminished during sleep, this does not apply to those of the digestive apparatus. When the brain is alert, the reflexes on guard, and the voluntary muscles at work, each department of the human economy is calling for its quota of innervation and blood; these different departments are exacting their tribute from the constructive forces, and turning over to the excretory organs the products of combustion and waste. During this period the digestive department can draw only a "working interest," not being permitted to put away any appreciable surplus, until the day's activities are ended, sleep stills the voluntary movements, decreases the carbon dioxid output, and makes the least demand on the involuntary vital mechanism. It is then that Nature, our industrious handmaiden, begins her constructive housekeeping. "She does it in an orderly co-operative way, following a regular method of work in repairing waste, actively forming new tissue, and giving just the proper amount of care and nourishment required of all parts, both mental and physical, in regular sequence." Niles does not advocate heavy meals at night, or articles of food calculated to tax digestion, but states that a certain amount of food in the stomach, the digestion of which in drawing from the brain a portion of its blood, keeps busy the nerve centers concerned, indirectly quiets other nerve centers which otherwise might exert a wakeful influence. Many sufferers from insomnia well know the happy effect produced by taking hot milk or cocoa, or a light repast just before retiring. The following are some general suggestions as to dietetic recommendations in relation to sleep: The young infant cannot get too much

sleep, and this is best attained by filling his stomach at stated intervals. Vigorous, growing children and those engaged in manual labor thrive on a full breakfast and dinner, these two meals containing most of the daily quota of proteids. The supper may be plentiful in quantity, but should consist of such articles as bread, milk, cereals, eggs, fruits, etc., which do not unduly stimulate the nerve centers by their metabolic products. Soups, rich extractives and solid proteids also cause the bladder to be filled with urine rich in waste products and very acid, this being a factor worth considering.

Those who labor with their brains, or skilled artisans whose crafts demand mental tension and but little muscular effort, will find their efficiency best subserved by a light breakfast, a slightly more plentiful lunch, and at the close of the day's work a generous meal, provided that after it three to five waking hours are allowed, so that the psychic reflexes may have an opportunity to contribute their share to the processes of digestion. For the leisure class or those who keep late hours and often burn the candle at both ends, it is advisable to take a light repast in bed at 10 A.M. to 12 noon, a hearty dinner at 5 to 8 P.M., and a moderate supper, with not too stimulating or alcohol-containing beverages at 11 or 12 P.M.

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### THE CINCINNATI MILK SHOW.

W. A. Evans, Chicago (*Journal A. M. A.*, June 5), furnishes a description of the Cincinnati Milk Show, which has just been brought to a successful close by the milk commission of the Cincinnati Academy of Medicine. It is only within three years that the legislature of Ohio put a stop to the feeding of distillery swill to dairy cows, and the recent exposition shows the results of this salutary change. The underlying principle of the exposition was the education of both the consumer and the producer and the co-operation of the United States Department of Agriculture and of a number of local organizations was secured. The Department of Agriculture furnished valuable exhibits and was represented by a number of experts, who explained the various phases of the exhibit. A valuable object lesson was the miniature reproduction of the dairy equipment of one or two model dairy farms in Kentucky and New Jersey, and a most interesting collection of pictures in the same line was contributed by the Maryland Board of Health. Examples of both sanitary and insanitary dairy management were displayed. Charts showing the progress of the milk from producer to consumer in the beginning of the work of the milk commission, were extremely instructive. Collections of dairy implements and apparatus were also exhibited. The show was so timed as to afford opportunity for physicians attending the Ohio State Medical Society to attend and share in the educational advantages afforded. They were not slow in availing themselives of this, and health officers of neighboring states and even lay members of boards of health were also in attendance. The producers took an active interest and, though entries of exhibits were limited to Cincinnati territory, their number was larger than that at another city where a national dairy show was held last year, in which entries of all grades of milk were allowed from all parts of the country. The quality of milk varied greatly, but the majority of the entries were fairly clean, and the produce of unclean milk were even more benefited than the prize winners, in that they learned just where their products were deficient. Dairy buildings as inspected by government officers were found to be sadly in need of reconstruction, but suggestions for betterment were kindly received by the dairymen. The dairy institute, which was held for two days, as a school for dairymen, had a gratifying attendance, and the papers brought out most interesting discussion, in which the dairymen took an active part. A better mutual understanding of conditions between the producer, dealer, and consumer was a natural

result. It was evident to the students of the milk problem that the producer was not getting what he should for his product, and that the consumer was not getting the quality of milk he deserves. The bringing together of the consumer and producer can have no other result than an improvement in the quality of milk and more of it at a fair price. The paper is illustrated.

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THE CONQUEST OF THE TROPICS.

In his presidential address, after mentioning one or two subjects very briefly, such as the work of the Association in influencing legislation favorable to the public health and endorsing Dr. Weir Mitchell's proposal for a monument to the medical officers who lost their lives in the Civil War, Dr. W. C. Gorgas (*Journal A. M. A.*, June 19), confined his remarks mainly to the sanitation of the Isthmus of Panama under his direction, and its promise for the future of the white race in the tropics. The most important measures taken there are for the destruction of the mosquito on which the prevalence of malaria depends. The species that carries the germs is weak in flight, one hundred yards being probably its ordinary range. The adult avoids the wind, and seeks for its protection undergrowth, grass and plants near the ground. It thus does not get far from its breeding places, and if we can destroy these and remove means of shelter for a sufficient extent to keep down malaria, the scourge of the tropics. The methods of destroying the breeding places are varied according to the locality, and drainage is of the first importance. Subsoil tiling makes the ideal anti-malarial drainage system. Once in, it needs no further expenditure. A superficial ditch in the tropics requires cleaning out every two weeks on account of the rapid growth of vegetation. It is therefore more economical to construct superficial ditches. These should be swept out frequently or pools will form from debris. In many places, thorough drainage is impracticable, as when a town is situated on the border of a large swamp, and in such cases the grass and algæ are cut away and animals are kept away from the margin of the water where their footprints would furnish water holes for mosquito breeding. When it can be done with safety, sulphate of copper is used for killing algæ, and when this cannot be used the larvæ are killed with crude petroleum or phinotas oil, which is a direct poison to them. Brush-cutting is only second to drainage, and therefore the brush is kept down and the grass mowed for a hundred yards around the part to be protected. A specially good example of the results obtained is furnished by the town of Colon, containing about 15,000 population and built on an island just above sea level, and in the rainy season practically in a swamp. The brush was first cut away for half a mile back of the town, and this cleared area was intersected by small canals and the entire swamp connected with these by surface ditches. This allowed the fresh water to run off, and the tides caused all the ditches to be filled daily with sea water. Careful attention was given also to all water containers in the town, including barrels and cisterns. The result was unexpectedly good. Not only the disease bearing mosquitos but the culex, a stronger flying variety, are almost entirely absent from Colon. In addition to killing mosquitoes in their breeding places and drainage, all houses on the Isthmus are screened with wire gauze, and the use of mosquito bars is also recommended, although not so rigidly insisted on. All employes are also urged to take 3 grains of quinine daily as a prophylactic. This is not compulsory, but they are urged to do so, and on an average 20,000 doses are given daily. To carry out the sanitary measures effectively, the Isthmus is divided into seventeen districts, each with its district inspector, and all under a chief inspector, who regulates the expenditures, etc. The medical officer in each district reports the number of cases of malaria under his jurisdiction weekly, and, by this means, track is

kept as to the efficiency of the inspectors and any rise in the number is thoroughly investigated. The results as to malaria are very satisfactory and the rate to 1,000 is less than one-fourth of what it was in 1905. The general health is excellent as is shown by the tables of mortality which are given for the whole population, the government employes by themselves, and the Americans in the district under sanitary jurisdiction. For 1908 the ratio was government employes 13.01 per 1,000 and for Americans alone 7.69 and 9.72 for males and females respectively. Gorgas believes that the debility from which the white man suffers in the tropics is due principally to malaria, and that, protected from this, he can thrive there as well as in a temperate climate. The only difference between the Americans in Panama and the whites formerly in that region, is that we have succeeded in protecting ourselves entirely from yellow fever and to a considerable extent from malaria. Yellow fever has a great effect on the death rate, but is not a notable cause of debility, while malaria is a disease that may effect the individual for years and is responsible for a vast amount of debility. It is not expensive or difficult for a white man to protect himself in the tropics. It is only necessary that he should screen his house well and drain and clear off the brush for a hundred yards from his dwelling. These measures are much less expensive than those he must take in the temperate zone to protect himself from cold. The returns for labor are many fold greater in the tropics than they are in the temperate zone, and Gorgas thinks that in the next few centuries the tendency will be for the white man to drift to the tropics, and that localities there will ultimately be the centers of as powerful and cultured white civilizations as any that will then exist in temperate regions. Our work in Cuba and Panama will then be looked on as the first demonstrations of the possibility of the Caucasians thriving in the torrid zone.

CHOLELITHIASIS AND PANCREATITIS.

C. N. Smith, Toledo, Ohio (*Journal A. M. A.*, June 5), states that the prevalence of cholelithiasis and of infections of the biliary tract as the essential feature in the production of pancreatitis demands thoughtful consideration. He enumerates the early symptoms: Pain, shortness of breath, liver tenderness, chills simulating malaria, etc. There is frequently a history of previous typhoid fever. The one great stumbling block in the way of an early diagnosis of gallstone disease, he says, is the allurement of jaundice, which seems to have bewitched the judgment of so many medical men, in that they demand its evidence before admitting the presence of gallstones. Jaundice, however, is an infrequent and inconstant event in gallstone disease, and when present is as a terminal rather than as an inaugural one. Too frequently, indeed, does jaundice announce the advanced stage of a secondary chronic pancreatitis. It is high time that the medical profession should break away from the fetish of jaundice; that it should recognize the presence of gallstones by their inaugural symptoms; that it should appreciate the gravity of gallstone complications and sequels and that it should forestall such complications and sequels by the institution of operative procedures immediately following the establishment of a diagnosis.

## NOTES FROM THE FOREIGN PRESS.

BY A. E. THAYER, Jacksonville, Fla.

A most interesting study of the effects of warmth upon infected animals has lately been published by Meltzer[1] and Rolly. Working with infected rabbits, they observed that in a rise of the temperature to 40 C., after which a rise of the temperature[2] to 40 C., after which there was a decrease, and increased temperature favored the formation of agglutinins and bacteriolysins. Whether the heat had a decided influence upon the animal's resistance in general could not be determined, nor was it clear that the alexins in the serum

were certainly augmented, and further, animals injected with toxins appeared neither favorably nor otherwise influenced, and yet a beneficial effect upon the infection could not be denied. It was not found that simply increasing the animal's bodily temperature could alone cause degenerations in the parenchyma of the large organs, and hence when such changes occur with fever they must be regarded as the result of toxic agents.

The influence of cold in causing disease has always been acknowledged by the profession, and regarded as all important by the laity. Siegel[3] reports a series of experiments upon dogs which convince him that there are cases of disease due to cold alone, in which chilling of the surface is itself sufficient to cause lesions (*e. g.*, nephritis) without bacterial activities in addition, and of the first importance in such cases is the behavior of the vaso-motor nerves. There are three observations which every practitioner is familiar with, which will lead him to subscribe to this view of the etiology of certain diseases of the deeper organs, viz., the well known effect of changes of temperature upon the vaso-motor nerves; the equally well known fact, long since established in the laboratory, that the blood supply of a part stands in close relation with lesions which occur in it; and, thirdly, the cases of serious disease, involving structural changes in some deeply placed organ, for which no other cause can be ascribed than a change of temperature, usually a sudden chill.

Yet the vast majority of the cases of nephritis are due to the action of toxins, brought to the kidneys by the circulating blood. Acting upon this hypothesis, Casper and Engel[5] have adopted a plan to use the patient's own blood for serum therapy. They performed venesection on eleven patients with chronic nephritis, taking from fifty to sixty cubic centimeters of blood; the serum obtained was heated several times to 58 C. and injected into healthy rabbits in increasing doses, making eight or ten such injections for each rabbit. These animals were then bled, carbolic acid to 0.5 per cent added to the serum, and the latter injected into the patient in small doses. In some cases normal serum from men or animals was injected later. To exclude spontaneous remissions, which would have interfered with the interpretation of results, only well established and unvarying cases of nephritis were treated in this way, and it was proved that the method was not only free from injurious effects, but that while casts and albumin disappeared altogether in one case, and more or less completely in others, yet in almost every case there was a distinct improvement in the general condition, and edematons lesions visibly diminished. The favorable change in the patient's own feelings may be explained as due to restoration of the function of renal elements which are not yet damaged and to protection from further injury, while, of course, elements already degenerated cannot be restored to normal. Similar studies in the serum therapy of nephritis were carried out long ago by Turbure, who used the serum of dogs. Since 1898 Teissiers[4] has been working with the serum of goat's blood, preferring this to the dog's serum because the goat is so free from tuberculosis, its serum has but slight toxic power and the animal costs but little. Serum from the renal veins of the goat may be taken by an aspirating needle, but care must be observed to prevent reflux of blood from the vena cava, for this seems to rob the serum of its therapeutic value. Serum so obtained has but little hemiolytic or toxic action, and its freezing point is almost that of normal human serum. The renal blood is allowed to stand from 50 to 60 hours in the cold and then the serum is divided into amounts of 15-20 c. c. and kept tightly closed and observed for its sterility. Doses of 15-20 c. c. are given under the skin, and may be repeated many times, despite the exanthem which may develop. The effects are almost always favorable, the albumin in the urine rapidly decreases, dyspepsia, vertigo and mental disturbances improve or disappear, the

urine increases in amount and decreases in toxicity.

Laghi[5] reports a case of primary renal tuberculosis cured by iodin-gelatine, in doses of 60 grams daily, maintained for several weeks. The patient was an anemic girl with double nephroptosis, pus and blood in the urine, but no fever or other symtpoms of tuberculosis. Tubercle bacilli were not found in the urine, but intraperitoneal injection of an animal with the urine proved the nature of the disease. Operative interference was dismissed, for it was not possible to determine which kidney was affected. The treatment improved the general condition and removed all urinary abnormalities, and, on the strength of this case, the author advises against operation for renal tuberculosis.

Our views as to the frequency of infection with tubercle bacilli depend to a large extent upon post-mortem statistics which show that about 80-90 per cent of all bodies examined contain either active or latent lesions due to tubercle bacilli; it has always appeared a fitting answer to such gloomy statements that the statistics are derived from hospital material, that is from the lowest layer of society, from those who have been underfed, underclothed, and exposed to tuberculosis all their lives.

But Hamburger and Monti[6] now assert that 95 per cent of the children in Vienna are tuberculous at puberty, not sick of tuberculosis, that is, but infected with tubercle bacilli. For the most part the lesions are minute changes in the bronchial lymph nodes, too small to be determined by clinical observation. The authors employed cutaneous and subcutaneous tuberculin reactions, and their statistics are supported by reports of a similar nature published by Ganghofner for the city of Prague and by Harbitz for Christiania. It will be recalled that Behring claims an infection during childhood for phthisis in the adult, and that experts with the X-ray find almost every adult lung, and the majority of those in adolescents, affected to some extent by tuberculosis. Such figures and reports are a distinct encouragement to those who are fighting tuberculosis, and not a call to lay aside their weapons in a hopeless fight, for they show that tuberculosis runs its course and completely heals without causing any symptoms in the vast majority of the cases; and that the race has an average high resistance, because the unfit in this regard have in large measure already been eliminated; and that, even if left to itself, tuberculosis in a few generations would inevitably sink to the level of a negligible disease and soon thereafter disappear from the list of human ailments.

Vassala has brought forward more than once in recent years a new and suggestive explanation for albuminuria and eclampsia in pregnancy. He believes that the underlying condition is an intoxication of the mother's system by catabolic products, which should be neutralized by the product of the parathyroid glands, but which are not deprived of toxicity because of imperfect function in these glands. According to this view, the albuminuria is not essential, but simply indicates that the circulating toxins are injuring the kidneys, which excrete them. That this has an immediate and important therapeutic application is self-evident; some effort must be made to supply the missing parathyroid function. Quadri[7] reports the case of a woman who suffered from albuminuria and eclampsia and was with difficulty rescued from death at her first pregnancy; a little more than a year later she again became pregnant, with increasing albuminuria. She was given a daily dose of 30 drops of Vassale's parathyroidin, afterward reduced to 20 drops, with the effect of reducing the albuminuria materially and carrying the patient safely through pregnancy and parturition. If further cases prove the value of the treatment, the explanation of this terrible complication and the means of controlling it are both furnished us by Vassale's hypothesis.

It might be thought that cystoscopy and cath-

eterization of the ureters could have no application in children, but Portner[8] claims that both may be necessary and permissible in these young patients, especially because the imperfect history so increases the difficulties of diagnosis; but, at the same time, such methods must be restricted to the cases where they are indispensable. Cases may be excluded, as not adapted, when there are bladder or kidney symptoms but no pathological sediment in the urine, cases of hematuria as part of a hemorrhagic diathesis or where casts make a nephritic origin probable, and also cases of pyuria, which commonly improve under proper treatment. And yet, where hematuria or pyuria persists for three or four weeks and the diagnosis is still obscure, either cystoscopy or ureteral catheterization may be required. In female children both are possible after the completion of the first year, while in boys the ureters may be catheterized only after the eighth year; narcosis is required for either.

Acute pancreatic diseases are obscure in their etiology and diagnosis and desperate therapeutically. Two main hypotheses are advanced to account for them, first, that they are due to bacterial infection, and, second, that they are due to the action of the organ's own ferments. Tow arguments are brought against this hypothesis of self-digestion, namely, that the organ has the power of protecting itself against its own product, which is undoubtedly true in a normal pancreas; and, further, that the ferments exist in the gland as pro-ferments, zymogens, requiring entero-kinase or secretin or erepsin to activate them for the digestion of proteids. Truhart[9] has published a number of his own cases, and over 4,000 collated from the literature, and upon this basis points out that the pancreatic cells resist the organ's own ferments only so long as their vitality has suffered no diminution, while disorganized tissue is extremely susceptible to destruction by ferments. When the cells have been injured in any way, as the practical pathologist often observes, the pancreatic trypsin may entirely digest them without the aid of erepsin or secretin. The kinase which converts pancreatic trypsinogen into active trypsin may be derived from the walls of atheromatous or sclerotic vessels, and the attack of the ferment upon adjoining cells then starts an active inflammation about the focus; the fate of the tissue after that is but an extension of the combined necrosis and inflammation, with hemorrhages. Clinically, the onset is usually sudden, with such severe pain that some patients attempt suicide, and following this are vomiting, collapse, and entire cessation of peristalsis, so that neither feces nor gas escapes by the rectum. The immediate cause of the pain, which may come in distinct attacks, is the recurrence of hemorrhages which tear the substance of the gland and imbedded nerve fibres. Death may be due to the destruction of the gland, with hemorrhages, involvement of the peritoneum, or reflex paralysis of the vasomotor center in the medulla. Such reflex effects may not be due to injury of the solar plexus and semi-lunar ganglia, as Zenker believed, for the sudden hemorrhages and destruction of the nerves in the pancreas itself may suffice to produce them.

According to Maas,[10] who publishes twenty cases controlled by autopsy, the Cammidge reaction is a valuable addition to our diagnostic measures; if negative, pancreatic disease may be excluded; if positive, such disease is very probable. The author's cases were positive in 14 and negative in 6, and the histological characters agreed in 15 of the 25, or 75 per cent. Schwarz[11] agrees as to the value of the reaction, and believes it is due to a pentose, and hence it indicates disturbance of the pancreatic function in the metabolism of carbohydrates. In has cases the reaction was positive when experimental and clinical observation indicated the presence of this class of metabolic disturbances. Labbe[12] thinks the reaction can hardly be of practical benefit until the technic is simplified, and there are too few trustworthy observations, and too

many unexplained points about it, to render a positive opinion of its value possible at present.

[1]Rolly and Meltzer, Deut. Arch. f. kl. Med., XCIV., p. 335.
[2]Siegel, Zeit. f. exper. Path. u. Therap., 1908. Bd. V., Hft. 2.
[3]Casper & Engel, Berl. klin. Woch., 1908, No. 41.
[4]Teissiers, Prov. Med. 21 year, No. 41.
[5]Laghi, Rivist. Crit. d. cl. med., 1909, Nos. 5, 6.
[6]Gessellsch. f. in. med. u. Kinderheilk. April 22, 1909.
[7]Quadri, Gaz. degli. osped, 1908, No. 116.
[8]Portner, Deut. med. Woch., 1908, No. 43.
[9]Truhart, Petersb. Med. Woch., 1909, No. 7.
[10]Maas, Med. Klinik, 1909, No. 5.
[11]Schwarz, Wien. klin. Woch., 1909, No. 9.
[12]Labbe, Presse Med., 1909, No. 11.

## EYE, EAR, NOSE AND THROAT

### ANESTHESIA IN TONSILLECTOMY AND ADENOIDECTOMY.

As a general premise to his paper in *The Journal A. M. A.*, August 28, on anesthesia in tonsillectomy, F. R. Packard, Philadelphia, says that, in his opinion, tonsil and adenoid operations in children and young persons under eighteen should practically always be done under a general anesthetic; over that age, when the patient has sufficient self-control and can cooperate, he prefers local anesthesia with cocain. He also lays down the following general propositions as applicable in all cases in which general anesthesia is employed: 1. The personal equation of the anesthetist, including his experience, judgment and all other qualifying factors, is by far the most important element in any operation under general anesthesia. Thus in spite of the dangers of chloroform, so much greater than those of ether, if he felt that the anesthetist could give it better than ether, he would prefer to have him do it. 2. The patient should be under observation or control, if possible, for at least twelve hours before the operation, and after it until he has completely recovered from the effects of the anesthesia. It is very hard sometimes to insure against the taking of food by children before the operation. The dangers from lodgment in the larynx and of pressure from a distended stomach are obvious. 3. Operations under general anesthesia should be done, if possible, in a hospital or in the patient's home. The extreme risk of allowing the patient to go out just after recovering from ether or chloroform has been repeatedly demonstrated. 4. If the operation is performed elsewhere than in a hospital, oxygen and other restorative means should be provided before hand. He always insured this, including tracheotomy instruments. 5. Although there is a general impression among physicians that mixed anesthesia, in which the narcosis is started with one anesthetic and maintained with another, is dangerous, this would seem to be unsupported by statistics. There are several reasons which render the subject of anesthesia in tonsil and adenoid operations one of the greatest importance: (a) Children thus suffering are apt to present the condition generally called status lymphaticus, and as such are notoriously bad subjects for any type of general anesthesia. (b) The mechanical obstructions to proper respiration from the presence of adenoids and enlarged tonsils interfere with the inhalation of an anesthetic so that the administration is prolonged and the amount required sometimes very large. The large quantity of mucus in the throat also interferes and increases the difficulty. (c) Another difficulty is the problem of not interfering with the operator, and to obviate this he takes pains to get his patients thoroughly anesthetized before doing any work. The best method of giving ether or chloroform, in Packard's opinion, is the so-called drop method on gauze, except in patients who require prolongation of the anesthesia when he has the anesthetist change to the vapor method, passing the ether through warm water in a wash bottle by means of a bulb compression apparatus. He always operates with the patient in the dorsal decubitus, with the head somewhat dropped over the end of the table. He believes that the upright position adds greatly to the danger of ether and chloroform, besides increas-

ing the risks of choking by blood and tissue or mucus entering the larynx. The danger of aspiration pneumonia is not to be ignored. As for the anesthetic, he decidedly prefers ether, and he quotes Gurlt's and others statistics showing the respective mortality from the use of the various anesthetics. Nitrous oxid anesthesia is so brief that its usefulness is limited. Ethyl bromid is dangerous, and ethyl chlorid has the drawback of introducing great rigidity of the jaws when used for any length of time, and besides, he thinks, does not diminish the sensitiveness of the mucosa as do ether and chloroform.

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### THE TONSILS.

C. M. Robertson, Chicago (*Journal A. M. A.*, August 28), describes in detail the anatomy and development of the normal tonsil and its variations and relations, and also gives the facts as known as to its physiology. At birth the tonsil is so small as to be unimportant. It attains its full development by the sixth or eighth year and then begins to atrophy. By the age of twelve or fourteen it should have disappeared and should show only as a cicatricial mass between the palatine pillars. Any tonsil that is markedly visible after that age may be considered pathologic. Clinically, nearly all children at six have adenoids and tonsils, and at eight probably 85 per cent have them. When they exist, pathologically, all kinds of infections may occur. Some authors claim that the tonsil has a part in digestion, but experiment does not prove this and Stohr claims that they have a phagocytosis action, which the author does not credit. If the normal tonsil is removed *in toto* there is no disastrous after-effect, but rather an improvement in health owing to an increased freedom of respiration. Robertson thinks that the function of the tonsil is an ancestral or developmental one, and if it has any function it must be one which is active only during the first part of a child's life between the sixth and eighth years, at which limit the gland has passed its acme of usefulness and normally should disapepar by atrophy. If it remains he holds that, after the sixth or eighth year, tonsils are pathologic and only detrimental, in rendering the individual the less able to combat infections. He recognizes the fact that he is making rather a sweeping statement which may be criticized by some, but he thinks the investigation, so far as published, of the physiology of the tonsil, having been made on pathologic glands, have been from an erroneous standpoint.

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### DISEASED TONSILS.

E. Mayer, New York (*Journal A. M. A.*, August 28), says that the conditions of the faucial tonsil which call for operative interference are: (1) Simple hypertrophy interfering with breathing; (2) diseased conditions of the tonsils themselves causing local or constitutional infection. He takes up these causes in order and gives an account of the results of the giving of attention to the enlarged tonsils in school children in New York City. Some of the children after operation showed an improvement of 100 per cent over their former ability to work and in behavior, from the simple removal of hypertrophied tonsil. Within six months 76 out of 81 operated on at one time had been promoted and were doing well in the advanced grades. Passing to the second cause, he speaks first of the affections of the tonsil itself that indicate the need of extirpation and, secondly, the constitutional disturbances connected with its disease. The most common of all these in the first category is acute lacunar or follicular tonsilitis, of which the recurrences are sometimes so frequent as to make the children lose much time from their school work. He goes over the literature to a considerable extent of the other various non-malignant tonsillar diseases, enumerating the various forms. The second class of cases are then mentioned ,and he says that the list has become a very formidable one. A careful study of the voluminous literature

of the subject does not all change his opinion, formerly expressed, as to the tonsils as the portal of infection of a large number of very serious conditions which can be averted by prompt extirpation of these organs. He concludes with the statement that it is imperative on the physician to advise thorough extirpation in all cases of unusual hypertrophy, recurrence of inflammation, or any diseased condition.

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REMOVAL OF TONSILS.

N. H. Pierce, Chicago (*Journal A. M. A.*, August 28), discusses the methods of dealing surgically with diseased tonsils. Anything short of complete extirpation is not the ideal, though temporizing measures may be resorted to under special circumstances. The best of these consists in slitting up the lacunae and cauterizing them with nitrate of silver daily until as many of them as possible are made to heal open. This method, however, is never permanently satisfactory and the results are less so with hot applications. In all cases there should be a period of preparation as tonsillotomy is a hospital operation. The patient should be sent to the hospital the day before, and a thorough examination made of the physical condition, together with a microscopic and chemical examination of the urine. Tonsils should not be operated on while inflamed and women and girls should not be operated on while menstruating. Special care should be taken to detect the status lymphaticus or hemophilia, and the presence of pulsations about the tonsils should be noted. Inspection should be supplemented by palpation. A course of calcium chlorid for a week before the operation is recommended by Pierce, and if there is any doubt about the coagulability of the blood its index may be tested by the method of Rouver. General anesthesia should be employed in all young children and in nervous adults, and in order to aid in the abolition of the deep laryngeal reflexes we may swab the tonsillar regions with a 10 per cent cocain in 1 to 1,000 adrenalin solution, after the patient has become relaxed. Local anesthesia is permissible only in older children and in adults who can be controlled. The position that Pierce adopts is with the patient on the right side, as throwing a less burden on the heart. A sand bag is put under the head, which is drawn close over the edge of the table, and a nurse keeps the patient balanced on the right side. The operator is seated so that his line of vision is on a line with the patient's mouth. The tonsil is loosened by a knife after being drawn forward by a vulsellum forceps. Pierce uses a special form of knife for this purpose. After loosening, the tonsil is twisted out of its bed and included in a snare. Then the other tonsil is secured in the same way and both are removed. If there remain portions of tonsil they must be carefully removed by the snare or tonsillar punch. Careful inspection should be made before the patient is removed from the table for hemorrhage, and if it continues, in spite of pressure, search should be made for bleeding points, which are usually found in the middle third of the wound. The carotids are out of the way, but there may be a loop of the lingual thrown up in the base of the tonsil causing severe hemorrhage, which can be controlled by means of a hemostat or deep ligature. He has never seen a case that demanded ligature of the carotids. For pedunculated tonsils he does not hesitate to recommend the old Matthieu tonsillotome. For long, thin, small tonsils which are occasionally the seat of cholesteatomatous disease, the scissors are better adapted, after the method of Robertson. After the operation the patient should be kept in the hospital and in bed for from 24 to 48 hours, and given only liquid or soft food without condiments. A gargle should be given and continued until the wound is healed, the formula he recommends being salicylic acid 10 c.c., spirits of nitrous ether 15 c.c., alcohol solution formal (1-10) 30 c.c., oil of wintergreen, oil of cloves, aa. glycerin, q. s. ad 120 c.c., S.: Half a teaspoonful to half

a glass of hot water, and gargle every two or three hours.

## SURGERY.

### SIMPLE FRACTURES.

L. A. Stinson, New York (*Journal A. M. A.*, March 27), remarks that in the diagnosis of simple fracture, difficulties are often met with and the signs of abnormal mobility and crepitus are frequently unobtainable when actual fracture exists. In many of these obscure or doubtful cases it is important that the positive or probable existence of a fracture should be promptly recognized. In many cases it is sufficient to establish the probability; that is in fractures near joints and probably involving them, and not in those portions of the articular end of a bone, in some of which an exceptional displacement of the fragment is a detail which it is important to recognize and correct. This probability of the existence of a fracture, amounting in most cases to a practical certainty, can be established by a systematic search for pain—pain on local pressure from without, pain on pressure along the axis of the bone, and pain when the patient seeks to use the axis of the bone, and pain when the patient seeks to use the affected bone against opposition. The search for pain on local pressure is best made with the tip of the finger or the rubber end of a lead pencil. A necessary precaution is carefully to support the limb so that the pressure even at a distance from the fracture shall not move the fragments one on another, and another precaution is to avoid mistaking the sensitiveness of a bruise for that of a fracture. Pressure against the ends of a bone in the direction of its long axis causes pain when the bone is completely broken across, but may fail when the fracture separates only a portion of the bone, such as a condyle. An important exception is the fracture of the neck of the femur, where forcible pressure of the limb upward often fails to cause pain. An example of the third method is in fracture of the ulna, the radius remaining unbroken; the patient should be asked to extend the elbow in pressing against a fixed object. Another is to have the patient clinch the hand forcibly when the internal epicondyle of the humerus is broken, the flexor muscles being attached in part to the fragment, ten dto displace it and thus cause pain. The same method will also cause pain in a Colles' fracture. Other movements, varying with the part broken, will also cause local diagnostic pain, and one single maneuver, namely, pressure upward against the ball of the foot while the patient rests, will often suffice to exclude in a moment fracture of the thigh, leg and foot. If this causes no pain it can be confidently assumed that no bone of the foot is broken and that the femur and tibia are not broken across. Stimson emphasizes the importance of this methodical search for pain in fracture. A large part of his paper is an argument against the tendency to an open operative treatment of simple fractures, which he thinks is only indicated when gross displacement exists and cannot be otherwise corrected. He thinks that the surgeon frequently defeats his own purpose by using pins or sutures; the normal rarefying process in the bone which must precede repair softens the tissues and loosens the fastenings, besides establishing condition of leverage which go far to ensure the immediate breaking of the suture in some of the inevitable twists and movements of the bone. Moreover, the use of foreign bodies itself causes delay of union and often creates a gap between the fragments and injures the periosteal bridge, which is so important for the repair. Sometimes the tissue between the loop of the sutures completely disappear. The additional injury to the soft parts predisposes to suppuration, and tends to the production of sinuses and bits of necrosed bone and increase of the cicatrical change and adhesion of the muscle. He refers to a recent report of 2,700 fractures treated in Korte's hospital service as confirming his views. The reporter, Petershon, expresses the opinion that very few

cases require operation, and says that this opinion is generally held in Germany. Summarizing the advantages of early operation, Stimson says that the readjustment, in successful, protects against certain irregularities in the outline of the reunited bone and against possible failures of union as might otherwise result to make sufficient reduction. This last condition is rare and the cosmetic advantages are unimportant. On the other hand there is the danger of trusting to the suture the risk of suppuration and injury to motion from the implication of muscles in the operation and its repair. Operation, he holds, is less prompt in its results and less safe, and only efficient in a very small number of cases, for which it should be reserved.

## GYNECOLOGY.

*The Fate and Value of Belated Ovaries.* In a valuable brochure entitled "The Position of Abdominal Hystenitomy in London," J. Bland Sutton writes as follows:

In regard to the fate of such ovaries in the present condition of our knowledge it may be stated that—

In a woman under the fortieth year of life a belated ovary remains active and discharges ova.

An ovary belated after the fortieth year of life atrophies, and menopause symptoms will often ensue in the course of a few months after the operation. The retention of an ovary minimizes the menopause disturbances, and they are never so acute and prominent under these conditions as they are when the menopause is induced by the sudden and complete removal of all ovarian tissue.

Experimental evidence obtained from rabbits proves that the removal of the whole uterus has no deterrent effect on ovulation, and it does not prevent the occurrence of uestrus and ovulation at periodical recurring intervals.

There is no necessity to appeal to experiments on animals in this matter, as clinical observations on women are most eloquent in proclaiming the great value of a conserved ovary when the uterus is removed on account of troublesome and dangerous fibroids.

In reference to the value of ovarian tissue after hysterectomy for fibroids, attention should be drawn to a modification of this operation known as the Abel-Zweifel method, by which a small segment of the menstrual area of the uterus is left as well as one or both overaies; this permits menstruation to continue in a subdued form.

Doran has particularly studied this method and practiced it, but I cannot express any opinion as to its value, never having had the courage to perform it.

My aim in performing hysterectomy for fibroids is to abolish as completely as possible the menstrual area of the uterus, and up to the present my efforts have been successful, and I have no complaint from any patient that this disagreeable phenomenon has manifeste ditself, although I have been at great pains by my own exertions, as well as by the efforts of those who have been associated with me in my hospital work, to keep in touch with women who have been so unlucky as to require such a serious operations as the removal of the uterus.

## BACTERIOLOGY.

### SERUM DIAGNOSIS OF SYPHILIS.

H. Noguchi, New York (*Journal A. M. A.*, September 18), explains the requisites of a rationally constructed, complement, fixation test which he says should have the quantity of each reagent definitely known. He points out the defects of the Wassermann-Neisser-Bruck method in which the amount of amboceptor is unknown and variable, and of the other methods, other than his own, and gives the advantages of the latter. They are, as stated by him: "Each factor is separable, titrable, definite. The proportional quantity of each factor adjustable. Complement from

guinea-pig. Can be used in fresh as well as dried state. Latter more stable. Amboceptor from rabbit immunized to human corpuscles and can be used in liquid as well as dried state on paper; latter more stable. Corpuscle suspension can be made from the blood of patient or any normal individual. Removal of serum by washing corpuscles preferable but not necessary unless fibrin ferment present. Patient's serum can be used in fresh, old or inactivated state, and if necessary serum can be dried on filter-paper and examined after an indefinite length of time. Antigen prepared from normal or syphilitic tissues by alcoholic extraction and subsequent acetone fractionation. Can be made stable by impregnating filter-paper. No danger of introducing excess of amboceptor or complement. Quantity of serum to be tested is very small and so adjusted as to avoid oversensitiveness. When inactivated, four or five times the amount used. Test, like all the others, requires a trained man, but not a fully equipped laboratory as is necessary with all the other systems." The article is fully illustrated.

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### THE WASSERMAN REACTION.

E. Castell, New York (*Journal A. M. A.*, September 18), believes that the Wassermann reaction as used by its founder is, with all its difficulties and delicacy of manipulation required, better than the so-called modifications which have been attempted to be made. The Noguchi modification is theoretically rational, but clinically it has sometimes aroused doubt, he says, as to its efficacy as a substitute for the original Wassermann test, and while he is confident of the results reported by Noguchi himself, he does not place the same confidence in the work of some of his pupils. He does not trust the human being for experiment because he does not live altogether under natural conditions. The Wassermann reaction, as it is now, has responded perfectly to the demands of the clinic. Noguchi has not proved his method to be better and Castelli advises conservatism as regards change. The really contradictory results have been obtained from the examination and interpretation of the results with the cerebrospinal fluid and he says we have good reason to discard the absolute reliability of the Wassermann test with the spinal fluid as compared to the reaction of the blood serum. He does not mean by this to discard the test with that fluid, but we should estimate a positive reaction as of less value and a negative reaction of more value when we test the cerebrospinal fluid. A special value has been attached to this test in general paralysis which does not correspond to the reality. It has, he says, less value in the early stages of paresis, but is useful in the prognosis and therapeutics of that disease. The number of cases in which it is positive varies with different observers with an average of 50 to 60 per cent, but nearly all admit that it is constant in advanced cases. The genesis of the process producing the Wassermann reaction, Castelli says, is different with the cerebrospinal fluid than with the blood serum. When the reaction is positive with the blood but negative with the cerebrospinal fluid the indications are to an early stage of the disease before nervous disintegration has taken place, and specific treatment is advisable. When the reaction is positive in both it is a positive indication of an advanced stage of paresis or tabes provided the clinical symptoms confirm the diagnosis; the brain is not then in a condition to be benefited by specific treatment. The positive reaction with the cerebrospinal fluid, therefore, seems to him to indicate an already somewhat advanced disintegration of the nervous centers, showing the presence in the cerebrospinal fluid of lipoids derived from their albuminoid components. This explains why this reaction occurs in patients where there may be no suspicion of syphilis, and, in his opinion, shows that general paresis is not exactly due to syphilis or its toxins, but to the immunizing substances produced in our organism, which becomes a victim to the au-

tointoxication. We are, therefore, compelled to give the Wassermann reaction a wider interpretation and consider it in many cases as showing a grave disturbance of the metabolism of the nervous system, while syphilis may still be considered as one of the most important causes of such conditions. Castelli gives the results of his experience in association with Dr. Sachs in examining approximately 250 cases, especially those in which the syphilitic origin of the disease could not be traced. The apparently non-specific cases were found in (1) myexdema, (2) scleroderma, (3) lupus, (4) leprosy. In all of these he finds a probability of an hereditary taint. Ln 5 cases of aneurism and 29 of cardiac valvular disease there was a nositive reaction in 24 and negative in 5. In 10 of these 24 cases syphilis was acknowledged, in the others unknown or denied. The therapeutic suggestions are given by him at some length. He says the Wassermann reaction has given us the means of detecting infection during the intrainfectious period, and a preventive rather than a repressive method of therapeutics. We have not yet, however, mastered the methods. His view is that we should introduce directly into the blood current the means of destroying the infection which is carried through the system by the blood at its very source, and that hypodermoclysis, venoclysis, seroclysis, etc., will in time entirely supersede every other therapeutic means, and he thinks that experiments to this effect should be undertaken in all of our hospitals.

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### TUBERCLE BACILLI IN THE BLOOD.

W. V. Brem, Canal Zone (*Journal A. M. A.*, September 18), says that in view of the recent publications by Rosenberger and the remarkable results he obtained, it seems worth while to report a similar investigation by himself in November, 1908, before he had seen Rosenberger's paper. He describes his technic, which was carefully devised to avoid possible sources of contamination. Some of his results, however, seemed so remarkble to him, as regards to ease with which positive results indicating bacillemnia were obtained, that he could not accept them without question, and sources of error were constantly being sought. The real source was found by the simple device of fixing to the slide with egg albumen the sediment from distilled water in the laboratory jar. In traversing the smear once, about 6000 acid-alcohol-resisting bacilli were found. Smears made with egg albumin alone were negative. He then had distilled water made in the laboratory and obtained negative results where he had obtained positive before. He thinks it probable that contamination of distilled water occurs frequently in laboratories where animals are kept. He sums up his paper as follows: "1. In examining blood, urine, stools, sputum and exudates for tubercle bacilli, the greatest care should be used to exclude contamination of water, and all solutions used with members of the acid-resisting group of bacilli (whether dead or alive). 2. In this investigation, coincidence occurred which were all but convincing of the presence of tubercle bacilli in the blood in every case of tuberculosis. 3. Animal experimentation was negative, but the quantity of blood used for inoculation was too small for the results to be of great value. 4. Acid-alcohol-resisting organisms were found eventually in fresh distilled water furnished by the Isthmian Canal Commission, in tap water, in old distilled water made with care in the pathologic laboratory, and in all solutions made up with the Canal Commission water. These bacilli were either dead or non-pathogenic to guinea-pigs. 5. There is as yet no conclusive proof of the frequent continued presence of tubercle in the circulating blood."

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### BOVINE AND HUMAN TUBERCLE BACILLI.

A. F. Hess, New York (*Journal A. M. A.*, September 18), says it has been definitely established that the tubercle bacillus of cattle sometimes incites tuberculosis in man and it

is asserted by some capable workers that the bovine bacillus can be so altered by years of sojourn in the human organisms as to simulate the human tubercle bacillus. The difficulty of studying this question comes from the fact that we are rarely able to be certain of the original source of infection and our main reliance is generally circumstantial evidence. An exception to this rule, however, is furnished by the few cases of direct inoculation in which the bovine origin is definitely established. He has with some difficulty found two cases of this character, both in slaughter-house workers, which he reports. In both cases the inoculation was definitely established and local tuberculosis nodules were similar in both. The general health was not affected, though in one case there was an enlarged hard epitrochlear gland at the right elbow. Both men submitted to have their nodules excised and inoculation experiments were made with them on guinea-pigs, which in every case developed tuberculosis. The cultures were typically bovine. He also made experiments with the object of transforming the bovine type with two bovine strains of known virulence in a medium (human placenta glycerin broth) resembling in its composition as closely as possible the human tissues. At the end of nine months the cultures made continuously on this medium were as typically bovine as ever. He remarks that the question has a practical as well as a theoretical aspect and the two need not be confused. The former considers whether is it in any way possible by a natural or artificial means to convert one type of bacillus in another type; the latter, whether the bacilli isolated from man and designated as human, have been converted in his tissues from an original bovine type. It is true that cultivation strains may be greatly changed, but this is exceptional and cannot be claimed as evidence of the possibility of a complete change of type. It is worthy of note also that typical bovine bacilli have been isolated from calcareous nodules of human beings where they must have existed for years without undergoing transformation. No case of primary pulmonary tuberculosis has been indisputably proved to have been incited by the bovine bicillus. If this form of disease is due in some instances to a bovine bacillus we ought occasionally to meet this type of bacillus before it has been converted into the human type, i. e., in the early stages of the disease. Not only do we know that this is not the case, but that even the intermediate types are rarely met with in primary pulmonary diseases. Therefore Hess considers we may form a practical standpoint disregard the question of transmutation of type. The two cases he reports he considers of interest as demonstrating the possibility of bovine bacilli existing in the human tissues many years in these cases (four and six years respectively) without any change toward the human type of the microbe. It would be interesting and of undoubted value, he thinks, to have access to similar long-standing cases and make them the subject of bacteriologic study.

## GENITO-URINARY.

### THE WASSERMANN REACTION.

B. Sachs, New York (*Journal A. M. A.*, Sept. 18), reports his experience with the Wasserman test in its relation to diseases of the central nervous system. He remarks that a positive Wassermann reaction may often be wanting in spite of the true luetic nature of the disease, if intense of prolonged antisyphilitic medication had been employed before the first test was made. In his work, therefore, he established a rule that neither mercury nor iodids were to be administered to any patient until the Wassermann test had been made. In the majority of cases, however, in which the negative reaction is obtained the thought of syphilis may be dismissed. What the test indicates is that an active syphilitic process exists somewhere in the system

and any inference beyond this point is hardly justifiable. His work was confined largely to the examination of the blood serum. In twenty-eight cases of tabes eighteen, or 64.3 per cent were positive, and ten, or 35.7 per cent were negative. This is a little lower than that of some other investigators, but the character of the patients has much to do with the percentages. Nineteen of his cases were private patients most of whom had been subjected to more or less specific treatment. If they had all been hospital cases or patients seen for the first time, the percentage would have been higher. All his female tabetic patients and all his female paretics gave a positive reaction, and all the therapeutic suggestion he has obtained from the reaction was that in every case where it was positive, specific treatment was pushed with more energy than would otherwise have been the case. Of thirty-one cases of general paresis 32.3 per cent gave a negative reaction aand 67.7 per cent a positive one. He thinks some of the cases may have been doubtful ones, as a number of them were in the psychopathic ward of Bellevue Hospital, where they were detained only four or five days and diagnosis had to be made hurriedly. A positive reaction is not a positive diagnosis by any means, for the neurasthenic early stage of paresis, since a syphilitic infection may occur or coexist with neurasthenia. The Wassermann reaction, Sachs says, is of special use in tabes and general paaresis only in so for as it tends to corroborate the theory of the specific origin of the two diseases, and also in so far as it justifies one in adopting strict antispyhilitic treatment until the character of the reaction has been altered as a result of this treatment. He gives details of the treatment of cases of both tabes and paresis in patients thus reacting positively, in whom such treatment appeared decidedly beneficial. In doubtful multiple cerebrospinal sclerosis or brain syphilis the test is decidedly valuable in diagnosis and as an indication for treatment, as is shown by several cases in Sachs' experience. It is also of much assistance in diagnosis of brain tumor or cases in which tumor is suspected, and it has become a routine matter, in his service in the hospital, to use the Wassermann reaction in all cases of brain tumor before operation is decided on, with a view to eliminating specific cases. He has a record of five such cases, in all of which the test was negative, and in one of which the reaction of the cerebrospinal fluid was also negative. In the sixth case a positive reaction helped him out of a serious diagnostic dilemma. As soon as the positive reaction was made out, the patient was put on mercurial treatment by sublimate injections, and within a week astonishing improvement occurred and he now seems to be fairly under way to recovery. Much assistance is given by the test in hemiplegias, especially if the symptoms indicate thrombosis, suggesting the possibility of specific endarteritis. It has also been useful in epilepsy when syphilis has been suspected as the only possible cause. A negative reaction is also instructive, particularly in case of tumor of the brain, in cases of peripheral arteries more or less resembling headaches, and in conditions of disease of the Raynaud's disease and erythromelalgia in which a negative reaction has led him to believe that the suspicion of specificity in these conditions may be given up. Sachs concludes by saying that the test is a valuable one in neurologic diagnosis as corroborating or dispelling the suspicion of specific disease. It is also of value in determining therapeutic procedures and of these, he believes the mercurial treatment the most effective, especially by the injection method.

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### ALIMENTARY ALBUMINURIA.

H. G. Wells, Chicago (*Journal A. M. A.*, September 11), has employed the anaphylaxis test to decide whether the albumin found in the urine in so-called alimentary albuminuria is simply filtrated through the kidneys or is of human origin. Although a few observers re-

port having found evidence of the presence of specific food protein in the urine in alimentary albuminuria by means of the precipitin reaction, yet by the anaphylaxis reaction the results are found quite different. Guinea-pig sensitized with urine from four healthy persons with experimental albuminuria produced by eating raw eggs, and with urine from two patients with nephritis, reacted typically and severely to subsequent injection of human ascites fluid and not at all to egg white or egg albumin. Wells says, that in view of the extremely minute quantity of protein necessary to sensitize guinea-pigs to the homologous protein, these results speak against the prevalent view that the albumin found in the urine in alimentary albuminuria is the same protein that has been taken in the food. Either it has been altered to the extent of acquiring specific human properties after ingestion and before being eliminated in the urine, or else it is not excreted at all, but injures the kidneys slightly and transitorily by overloading the blood with nitrogenous waste products so that they become more permeable to the normal serum proteins. This last explanation, he says, would seem most probable but for the fact mentioned above of food proteins being detected by several observers by means of the precipitin reaction. This discrepancy between the two tests may be interpreted as meaning that the two methods are not of equal value, or it may be suggested that the precipitin reaction is given by food proteins that have been so altered during absorption and excretion that they will not sensitize guineapigs to the original protein. Previously reported experiments, however, show that digestion of proteins quickly destroys their power of reacting with precipitin, while the anayhylactic properties of protein are not lost by digestion for a very long time. In any case, Wells says, there can be no question that in alimentary albuminuria, as well as in nephritis, the urinary proteins are chiefly, if not exclusively, human proteins and therefore presumably derived from the blood and not from food. Whether any unaltered food protein reaches the urine is still in question on account of the statements of the observers who have reported it with the precipitin test. Further studies are needed to clear up this point, both because it is desirable to know just the relation of the two tests to each other and to settle the physiologic question whether unaltered food proteins can pass through the intestinal wall. There is some practical importance to this question because at times it might be desirable to know whether the albumin in a given sample of urine comes from the food or the blood. To show the delicacy of the anaphylactic reaction, he reports experiments made with sensitizing guinea-pigs with urine from healthy young men and detecting the presence of albumin when it existed in so small amount that it gave no reaction to the heat or nitric acid tests.

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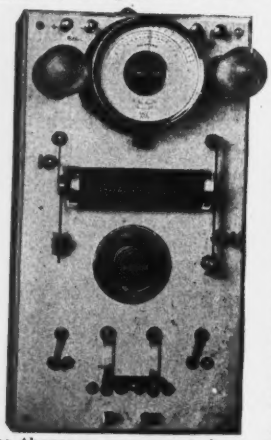

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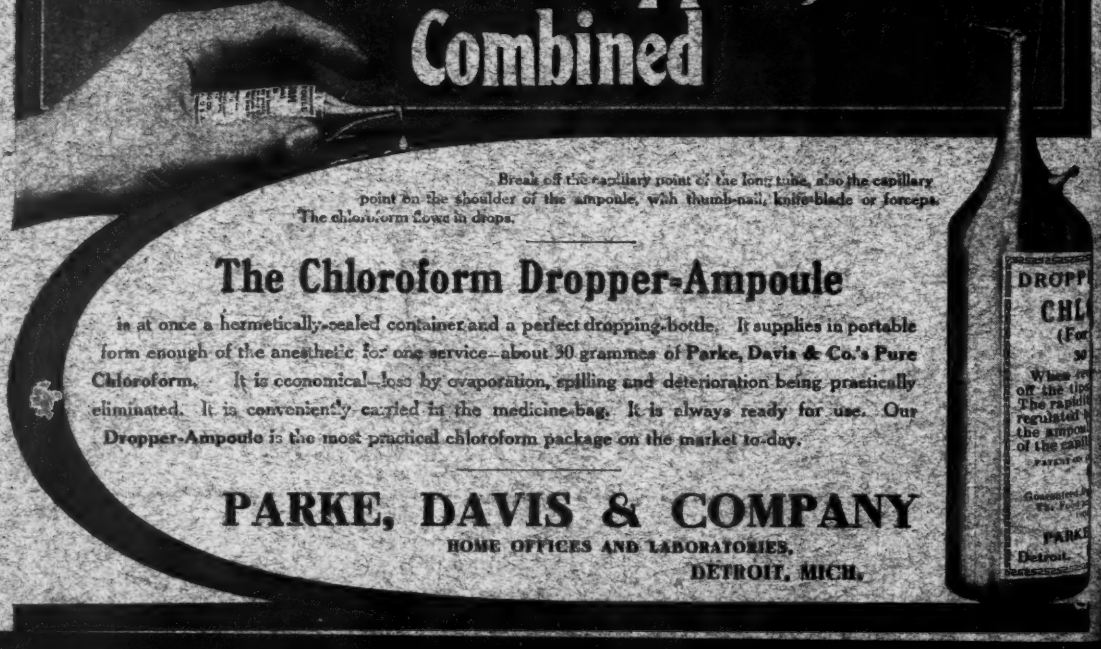


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